SDMS US EPA REGION V -1

SOME IMAGES WITHIN THIS DOCUMENT MAY BE ILLEGIBLE DUE TO BAD SOURCE DOCUMENTS.

L0270200002--Clinton County
Circle Smelting
ILD050231976

0000003

78671

DRAFT

CERCLA
Screening Site Inspection Report

Illinois Environmental
Protection Agency
P.O. Box 19276
Springfield, IL 62794-9276

TABLE OF CONTENTS

Section		Page
1	INTRODUCTION	1-1
2	SITE BACKGROUND	2-1
	2.1 INTRODUCTION	2-1
	2.2 SITE DESCRIPTION	2-1
	2.3 SITE HISTORY	2-3
3	SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS	3-1
	3.1 INTRODUCTION	3-1
	3.2 SITE REPRESENTATIVE INTERVIEW	3-1
	3.3 RECONNAISSANCE INSPECTION	3-2
	3.4 SAMPLING PROCEDURES	3-4
4	ANALYTICAL RESULTS	4-1
	4.1 INTRODUCTION	4-1
	4.2 RESULTS OF CHEMICAL ANALYSIS OF IEPA COLLECTED SAMPLES	4-1
5	BIBLIOGRAPHY	5-1

DRAFT

Appendix		Page
A	SITE 4-MILE RADIUS MAP.	A-1
B	SITE 15-MILE SURFACE WATER MAP.	B-1
C	U.S. EPA FORM 2070-13	C-1
D	U.S. EPA IMMEDIATE REMOVAL ACTION CHECKSHEET.	D-1
E	TARGET COMPOUND LIST.	E-1
F	IEPA SITE PHOTOGRAPHS	F-1
G	CHEMICAL ANALYSIS DATA OF IEPA COLLECTED SAMPLES.	G-1

LIST OF ILLUSTRATIONS

DRAFT

Figure		Page
2-1	SITE LOCATION	2-2
3-1	SITE FEATURES	3-3
3-2	SAMPLING LOCATIONS.	3-5

LIST OF TABLES

DRAFT

Table		Page
4-1	ANALYTICAL SUMMARY OF IEPA COLLECTED SAMPLES.	4-2

1. INTRODUCTION

DRAFT

Illinois Environmental Protection Agency's Pre-Remedial Unit was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a screening site inspection (SSI) of the Circle Smelting site.

The site was initially discovered by the U.S. EPA in May of 1987. The site was evaluated in the form of a Preliminary Assessment (PA) that was prepared by Gregory W. Dunn of the IEPA dated June 15, 1987 and submitted to U.S. EPA. The IEPA's Pre-Remedial Unit prepared an SSI workplan of the Circle Smelting site that was approved by U.S. EPA. The SSI of this site was conducted on July 26, 1988. The IEPA SSI included an interview with a site representative, a reconnaissance inspection, and the collection of nine soil samples.

The purposes of an SSI have been stated by U.S. EPA in a directive outlining Pre-Remedial Program strategies. The directive states:

> All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined preliminary HRS [Hazard Ranking System] score, 2) establish priorities among sites most likely to qualify for the NPL [National Priorities List], and 3) identify the most critical data requirements for the listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act].... Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.

The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI (U.S. EPA 1988).

U.S. EPA Region V has also instructed IEPA to identify sites during the SSI that may require removal action to remediate an immediate human health and/or environmental threat.

2. SITE BACKGROUND

2.1 INTRODUCTION

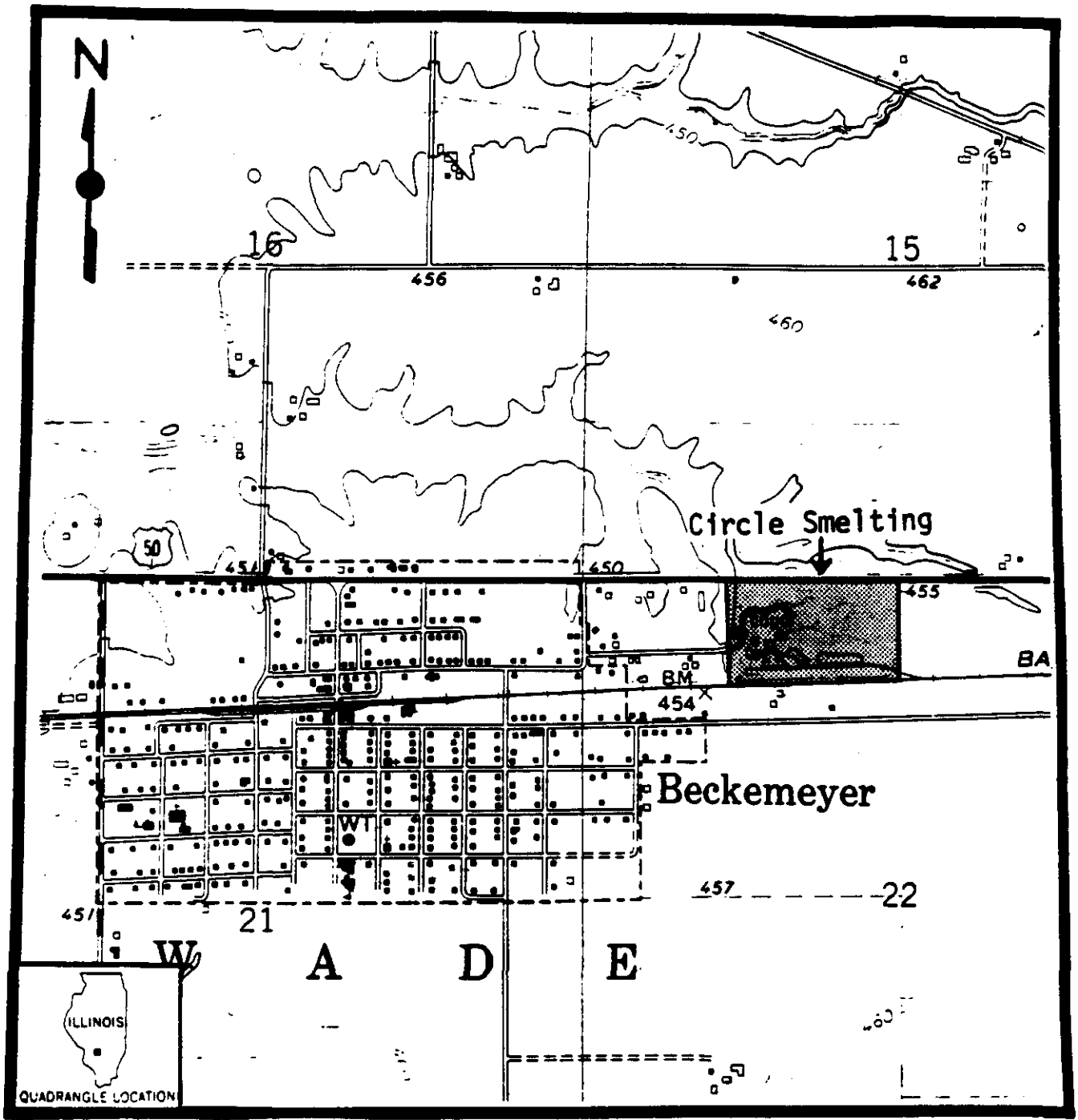
This section includes information obtained from the SSI workplan preparation and site representative interview.

2.2 SITE DESCRIPTION

The Circle Smelting site is an active secondary zinc and aluminum smelter. The plant has eight old smelting furnaces, an employee locker room, an office, and thirteen other buildings used primarily for production purposes. The northern part of the site is an open area that used to contain deteriorating drums, metal materials and raw materials. An area approximately 38 acres at the plant is covered with one to fifteen feet of metal-rich cinders (ISWS,1982).

The site is located on a 41-acre parcel of land in Beckemeyer, Illinois (See Figure 2-1) in Clinton County (W1/2 NE1/4 NW1/4 Section 22, T.2N., R.3W.). A 4-mile radius map for groundwater and a 15-mile surface water map of the Circle Smelting area is provided in Appendix A and Appendix B, respectively.

DRAFT



SOURCE: IEPA, 1988; BASE MAP: USGS 1969 Beckemeyer, Illinois Quadrangle, 7.5 Minute Series.

1000 0 1000 2000 FEET

FIGURE 2-1 SITE LOCATION

2.3 SITE HISTORY

This site has been in operation since the early 1900's as a primary or secondary zinc smelter. Missouri Zinc Company was one of the first operators to use the site as a primary zinc smelter (Charles Licht Engineering, 1988). Other past owners include Clinton County Zinc Company, Five Inc. and Federated Metals Division of the American Smelting and Refining Company, Inc. (ASARCO). ASARCO used a Belgium retort system for boiling zinc scrap in order to reclaim a reasonably pure zinc material. The remnants of the furnaces used in the process are still visible on-site. Circle Smelting took over operations in 1965 and still owns the site. The Illinois State Water Survey conducted a study of three smelter sites in Illinois, with Circle Smelting one of the three (ISWS, 1982). (Circle Smelting is Site B in the report.)

Illinois EPA became involved with this site in July of 1986 when a fire broke out at the Circle Smelting facility. Seven to eight people were evacuated due to the large amounts of smoke, possibly containing hazardous compounds. The IEPA Immediate Removal Unit initiated a sampling event in September of 1986 that revealed heavy metal contamination on and off-site. Circle has since cleaned up the north area of the site by removing scrap drums, junk parts, construction debris and raw materials. The raw materials were placed inside buildings to be reprocessed.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI at the Circle Smelting site. Individual subsections address the reconnaissance inspection and sampling procedures. The SSI was conducted in accordance with the U.S. EPA-approved workplan.

The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the Circle Smelting site is provided in Appendix C. The U.S. EPA Immediate Removal Action checksheet for the site is provided in Appendix D.

3.2 SITE REPRESENTATIVE INTERVIEW

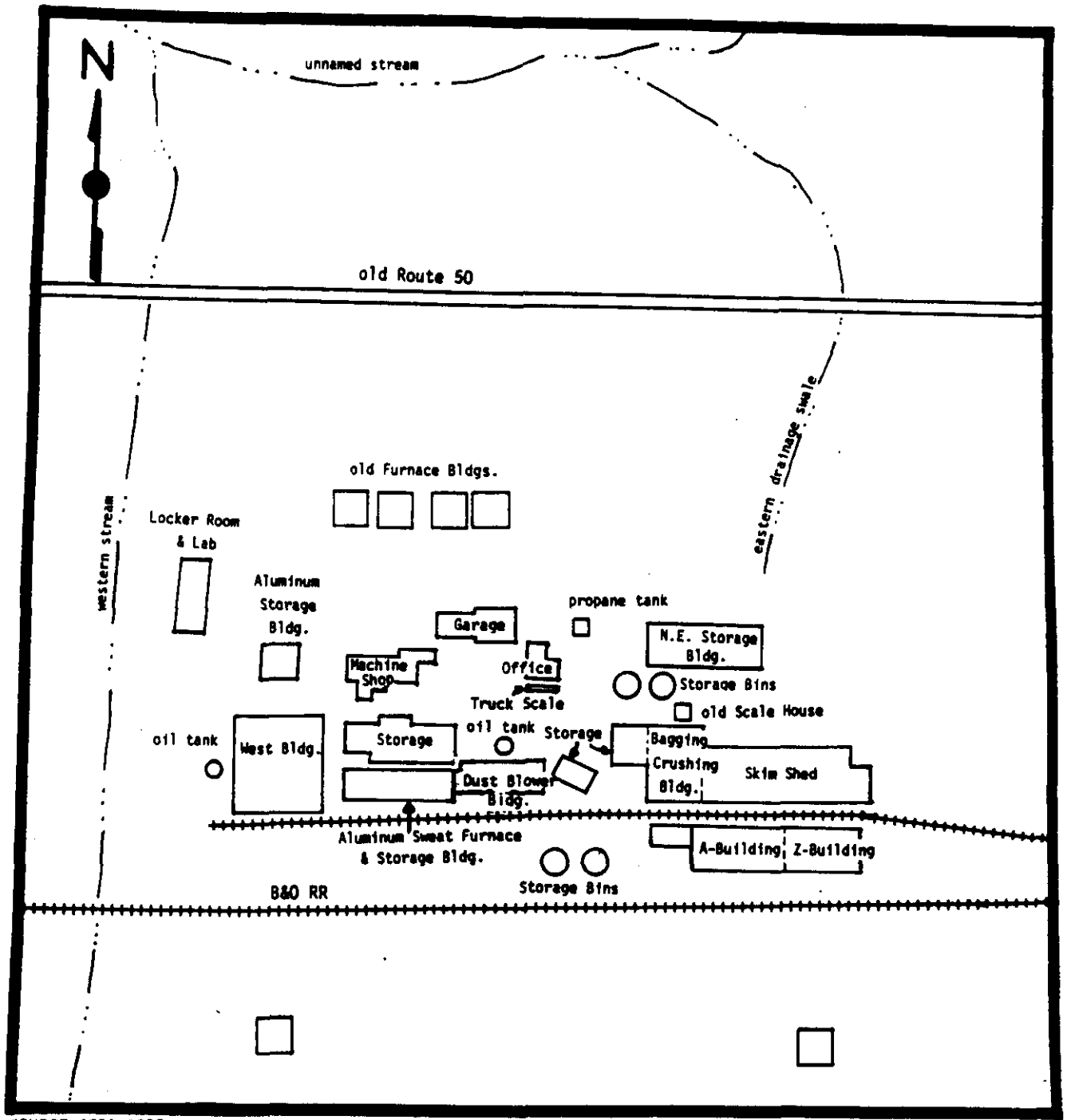
Greg Dunn, IEPA team leader, conducted an interview with Mr. Dave Meyer, plant manager of Circle Smelting in Beckemeyer, Illinois. The interview was conducted at the site on July 26, 1988, at 8:30 a.m.

Also present during the interview was Charles Licht of Charles Licht Engineering Associates, Olympia Fields, Illinois (consultant for Circle). The interview was conducted to inform Circle representatives of IEPA's intentions. IEPA representatives also present, were Ken Corkill and Tim Murphy of IEPA's Pre-Remedial Unit.

3.3 RECONNAISSANCE INSPECTION

IEPA personnel conducted a reconnaissance inspection of the Circle Smelting facility and surrounding area on May 26, 1988. The reconnaissance inspection included a walk around the facility to determine sample locations and appropriate health and safety requirements. The reconnaissance inspection began at 9:00 a.m.

Reconnaissance Inspection Observations: Circle Smelting Corporation is located on 41 acres of land on the east side of Beckemeyer, Illinois. Land use is residential, agriculture, and commercial. The surface topography of the site is relatively flat, with site slope toward the north and west. The site is bordered by old Route 50 on the north, the B & O Railroad on the south, farmland on the east and a sawmill on the west. Two drainage systems exist within the site boundaries. A small creek flows from the south to the north on the west side of the site and a small drainage swale (originating on-site) flows north under old Route 50 to another small creek. The surface water flows approximately 1 1/2 miles to Beaver Creek, then eventually into Shoal Creek. The site perimeter is not fenced and no additional security measures exist to deter access (See Figure 3-1 for site features). A large smoke wall was put up on the northwest corner of the site, next to old Route 50. The wall was built by ASARCO to minimize smoke drifting across the highway.



SOURCE: IEPA, 1988.

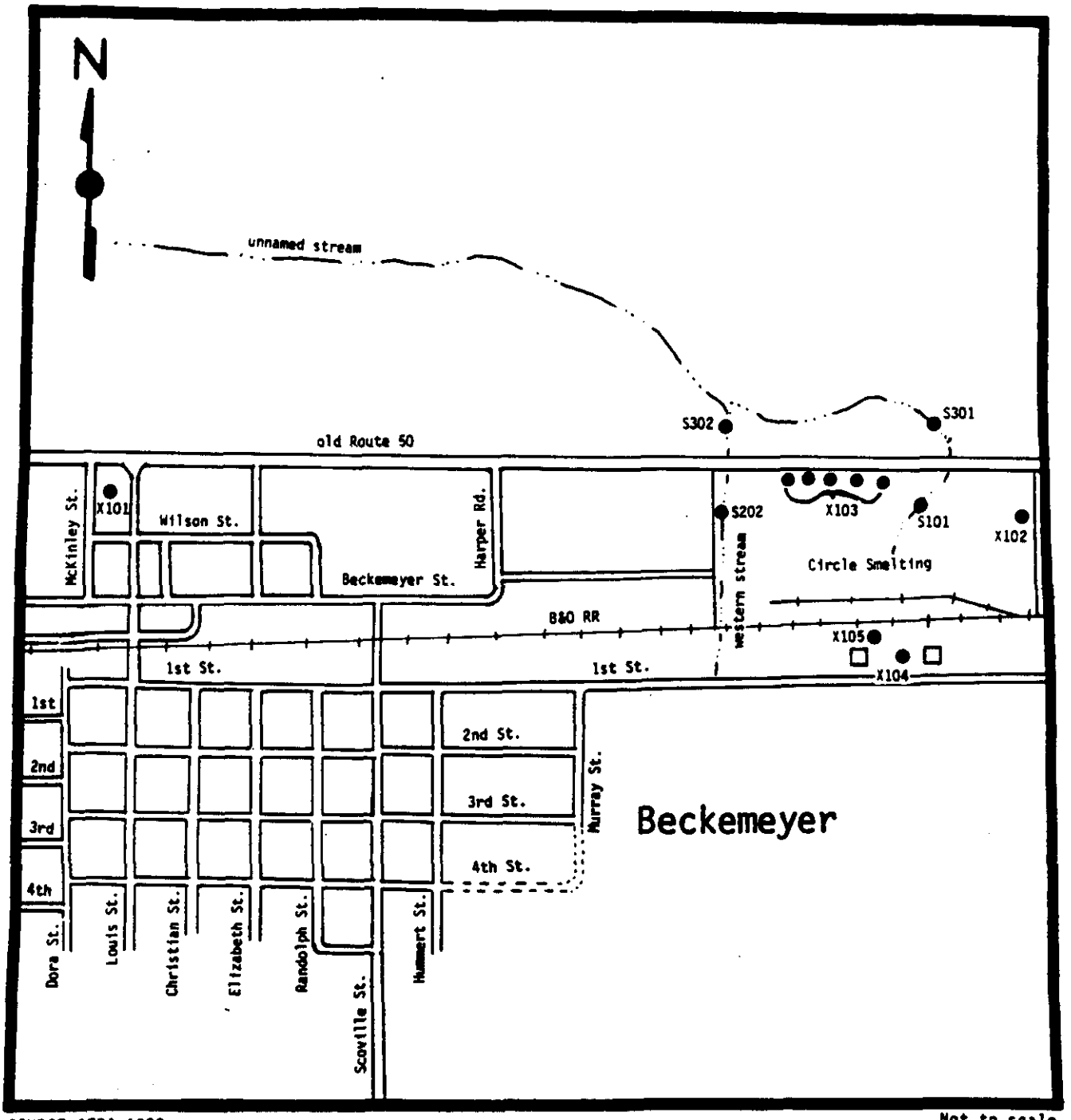
Not to scale

FIGURE 3-1 SITE FEATURES

3.4 SAMPLING PROCEDURES

Samples were collected by IEPA personnel to determine levels of U.S. EPA Target Compound List (TCL) compounds present at the site. The TCL compound list is provided in Appendix E.

On July 26, 1988, IEPA personnel collected nine soil samples (See Figure 3-2 for the nine sampling locations). Samples were not split with site representatives, who accompanied IEPA personnel during the sample collection. Soil/Sediment Sampling Procedures: The five soil and four sediment soils were taken to characterize on-site and off-site soils. X101 was a background soil sample taken approximately 3200 feet west of the site. This sample was taken as background because soil in this area appeared to be representative and undisturbed. S301 was taken in the eastern drainage swale approximately 140 feet north of Old Route 50. This was an off-site downstream sample of the eastern drainage swale. S101 was also taken in the eastern drainage swale approximately 180 feet south of Route 50. This was taken on-site about half-way between the highway and where the eastern swale originates. X102 was a soil sample taken on the eastern edge of the facility approximately 116 feet west of the billboard sign and 194 feet south of old Route 50. X103 was a composite soil sample taken from five areas on the north part of the site. The sample collection began at the eastern edge of the smoke wall and proceeded west with a sample taken every 50 feet. The samples were all taken between 36 to 40 feet south of the smoke wall. S302 was a sediment sample



SOURCE: IEPA, 1988.

Not to scale

FIGURE 3-2 SAMPLING LOCATIONS

taken in the stream on the west side of the site. This sample was taken approximately 105 feet north of old Route 50. S202 was taken mid-site in the western stream approximately 55 feet north of a culvert that drains the north part of the Circle site. X104 was a soil sample taken in the Ripperda and Trickey backyard, which is south of the facility. The sample was taken 124 feet from the water meter in front of the Trickey yard and 134 feet from the center of the road. X105 was taken in the backyard of the Ripperda residence, approximately 122 feet south of the center of the railroad tracks and 23 feet east from the west end of the blue trailer.

The soil samples were collected with stainless steel spoons, with the soil transferred directly to the sample jars. All samples were taken from the top two inches. The sample jars were evidence taped and packaged in accordance with U.S. EPA required procedures. The samples were analyzed for the TCL by ARDL, Inc., Mt. Vernon, Illinois. Photographs for the Circle Smelting site are provided in Appendix F.

Decontamination Procedures: Standard Illinois Environmental Protection Agency decontamination procedures were followed prior to the collection of all samples. The procedures included the scrubbing of all equipment (bailers, spoons, pans, etc.) with a non-foaming Trisodium Phosphate solution, rinsing with hot tap water, rinsing with acetone, rinsing with hot tap water again and final rinsed with distilled water. All equipment is air dried, then wrapped and stored in heavy duty aluminum foil for transport to the field. Field decontamination procedures include all of the above except the hot tap water rinse.

4. ANALYTICAL RESULTS

4.1 INTRODUCTION

This section includes the analytical results of IEPA-collected samples for TCL compounds.

4.2 ANALYTICAL RESULTS OF IEPA-COLLECTED SAMPLES

Chemical analysis of soil/sediment samples collected by IEPA personnel revealed the following substances from the TCL: heavy metals, volatiles, semi-volatiles, common laboratory artifacts and common soil constituents (See Table 4-1 for the summary of soil sample analysis results). Complete laboratory analytical data of soil sample analyses are provided in Appendix G.

DRAFT

Circle Smelting Corp.
ILD 050231976

Table 4-1
Summary of Chemical Analysis Results
(Concentrations in parts per billion (ppb)

SAMPLING POINT	S101 7-26-88	S301 7-26-88	S202 7-26-88	S302 7-26-88	X101 7-26-88	X102 7-26-88	X103 7-26-88	X104 7-26-88	X105 7-26-88
Volatiles									
Methylene Chloride	14.0	39.0 B	100.0 B	120.0 B	69.0 B	49.0 B	50.0 B	120.0 B	87.0 B
Acetone	17.0	42.0 B	46.0 B	70.0 B	180.0 B	140.0 B	52.0 B	140.0 B	110.0 B
Carbon Disulfide			2.0 J						
Chloroform		16.0 B	9.0 B	17.0 B	26.0 B	17.0 B	8.0 B	19.0 B	21.0 B
2-Butanone			5.0 JB	30.0 B		19.0 B			
Vinyl Acetate		0.7 JB		11.0 B		10.0 B			
Toluene		22.0 B	15.0 B	3.0 JB	160.0 B	87.0 B		180.0 B	
Ethylbenzene		2.0 J			20.0	10.0		16.0	
total Xylenes		15.0	4.0 J		105.0	48.0		75.0	
Semivolatiles									
Benzoic acid	56.0 J					100.0 J	50.0 J	60.0 J	80.0 J
Naphthalene			53.0 J	400.0				30.0 J	
2-Methylnaphthalene			87.0 J	660.0			280.0 J	60.0 J	60.0 J
Dibenzofuran				190.0 J			90.0 J		
Phenanthrene		9.0 J	94.0 J	570.0			220.0 J	100.0 J	100.0 J
Anthracene				44.0 J					
Di-n-butylphthalate	2500.0 B	2800.0 B	2600.0 B	1300.0 B	970.0 B	1500.0 B	1100.0 B	850.0 B	850.0 B
Fluoranthene	13.0 J		50.0 J	350.0					
Pyrene	30.0 JB		86.0 JB	360.0 B			110.0 JB		
Butylbenzylphthalate		48.0 J	58.0 J						
Chrysene				150.0 J					
bis(2-Ethylhexyl)phthalate							230.0 J		330.0 J

DRAFT

Circle Smelting Corp.
ILD 050231976

INORGANIC ANALYSIS
SUMMARY

ALL CONCENTRATIONS IN parts per million (ppm)

SAMPLING POINT	S101	S301	S202	S302	X101	X102	X103	X104	X105
	7-26-88	7-26-88	7-26-88	7-26-88	7-26-88	7-26-88	7-26-88	7-26-88	7-26-88
PARAMETER									
ALUMINUM	23000.0	19000.0	12000.0	11000.0	10000.0	9700.0	12000.0	10000.0	9500.0
ANTIMONY									
ARSENIC	(0.31)	(0.28)	20.0	30.0	(1.5)	1.9	31.0	9.6	2.2
BARIUM	330.0	190.0	230.0	140.0	130.0	140.0	160.0	170.0	190.0
BERYLLIUM									
CADMIUM	7.9	4.7	22.0	12.0		0.97	54.0	1.9	4.9
CALCIUM	2800.0	2800.0	38000.0	4900.0	2400.0	1900.0	3200.0	4400.0	4200.0
CHROMIUM	28.0	24.0	32.0	37.0	13.0	14.0	71.0	24.0	22.0
COBALT	46.0	22.0	30.0	22.0	(9.2)	13.0	26.0	12.0	14.0
COPPER	190.0	180.0	3800.0	3600.0	71.0	160.0	5800.0	880.0	490.0
IRON	34000.0	29000.0	37000.0	37000.0	12000.0	13000.0	34000.0	17000.0	22000.0
LEAD	390.0	550.0	9370.0	6100.0	200.0	300.0	8300.0	1600.0	940.0
MAGNESIUM	3100.0	2400.0	2500.0	1200.0	1300.0	1200.0	2100.0	1200.0	1400.0
MANGANESE	2600.0	1900.0	1700.0	1100.0	710.0	1100.0	1300.0	920.0	1000.0
MERCURY			0.69	0.25		0.044	0.30	0.13	0.16
NICKEL	280.0	180.0	1000.0	1400.0	35.0	74.0	3200.0	450.0	310.0
POTASSIUM	2300.0	1900.0	(650.0)	(510.0)	(1000.0)	1100.0	(650.0)	(980.0)	1000.0
SELENIUM				1.6	(0.50)	(0.58)	1.5	1.5	(0.75)
SILVER					5.0	4.6	5.8		(1.8)
SODIUM	(110.0)	(110.0)	(500.0)	(310.0)			(300.0)	(260.0)	(250.0)
THALLIUM									
TIN									
VANADIUM	63.0	72.0	35.0	30.0	26.0	31.0	25.0	30.0	27.0
ZINC	6600.0	5800.0	61000.0	42000.0	640.0	3500.0	72000.0	11000.0	8400.0
CYANIDE						0.44			0.67
SULFATE	1.3	100.0	1200.0	310.0	190.0	100.0	310.0	2600.0	180.0
SULFIDE				7.8					
Ph (lab/field)									
CONDUCTIVITY (1/f)									

DRAFT

QUALIFIER	DEFINITION
U	Indicates element or compound was analyzed for but not detected. Report the detection limit value (e.g., 10U).
J	Indicates an estimated value. This flag is used either when estimating a concentration for TIC's where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the CRDL.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides greater than or equal to 10 ng/ul in the final extract shall be confirmed by GC/MS.
B	This flag is used when the analyte is found in the blank as well as the sample. This flag must be used for a TIC as well as for a positively identified TCL compound.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample numbers (both lab and EPA) on the Form 1 for the diluted sample, and all concentration values reported on that Form 1 are flagged with the "D" flag.
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form 1 for the original analysis. If the dilution

QUALIFIER	DEFINITION
	of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms 1. The Form 1 for the diluted sample shall have the "DL" suffix appended to the lab sample number and the EPA sample number.
S	Indicates value determined by Method of Standard Addition
N	Indicates spike sample recovery is not within control limits.
*	Indicates duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for method of standard addition is less than 0.995.
[]	Result is greater than or equal to the instrument detection limit but less than the contract required detection limit.

DRAFT

5. BIBLIOGRAPHY

Charles Licht Engineering Associates, Inc., January 22, 1988, "Workplan for Circle Smelting, Beckemeyer, Illinois".

Clinton County Title Office, unknown date, history of owners at the present Circle Smelting facility.

HARZA Environmental Services, Inc., 1986, memo to James Janssen IEPA from Randy Marshall, sampling of soils at Circle Smelting.

Illinois Department of Energy and Natural Resources, State Water Survey, water well records for Clinton County, T.1N. R.3W., T.1N. R.4W., T.2N. R.3W., T.2N. R.4W.

Illinois EPA, October 21, 1986, memo to Office of Emergency Management from Tom Powell, concerning Circle Smelting fire.

Illinois EPA, 1987, Potential Hazardous Waste Site Preliminary Assessment, for Circle Smelting site, U.S. EPA ID: ILD050231976, prepared by Gregory W. Dunn.

Illinois State Water Survey, Cooperative Groundwater Report #9, 1982 "Retention of Zinc, Cadmium, Copper and Lead by Geologic Materials" by James P. Gibb and Keros Cartwright.

Meyer, Dave, July 26, 1988, interview, plant manager at Circle Smelting, Beckemeyer, Illinois.

U.S. EPA, Office of Solid Waste and Emergency Response, February 12, 1988, Pre-Remedial Strategy for Implementing SARA, Directive number 9345.2-01, Washington, D.C.

U.S. Geological Survey, 1969, Beckemeyer Illinois, Quadrangle, 7.5 Minute Series.

U.S. Geological Survey, 1969, Carlyle Illinois, Quadrangle, 7.5 Minute Series.

U.S. Geological Survey, 1969, Keysport Illinois, Quadrangle, 7.5 Minute Series.

U.S. Geological Survey, 1968, Stolletown Illinois, Quadrangle, 7.5 Minute Series.

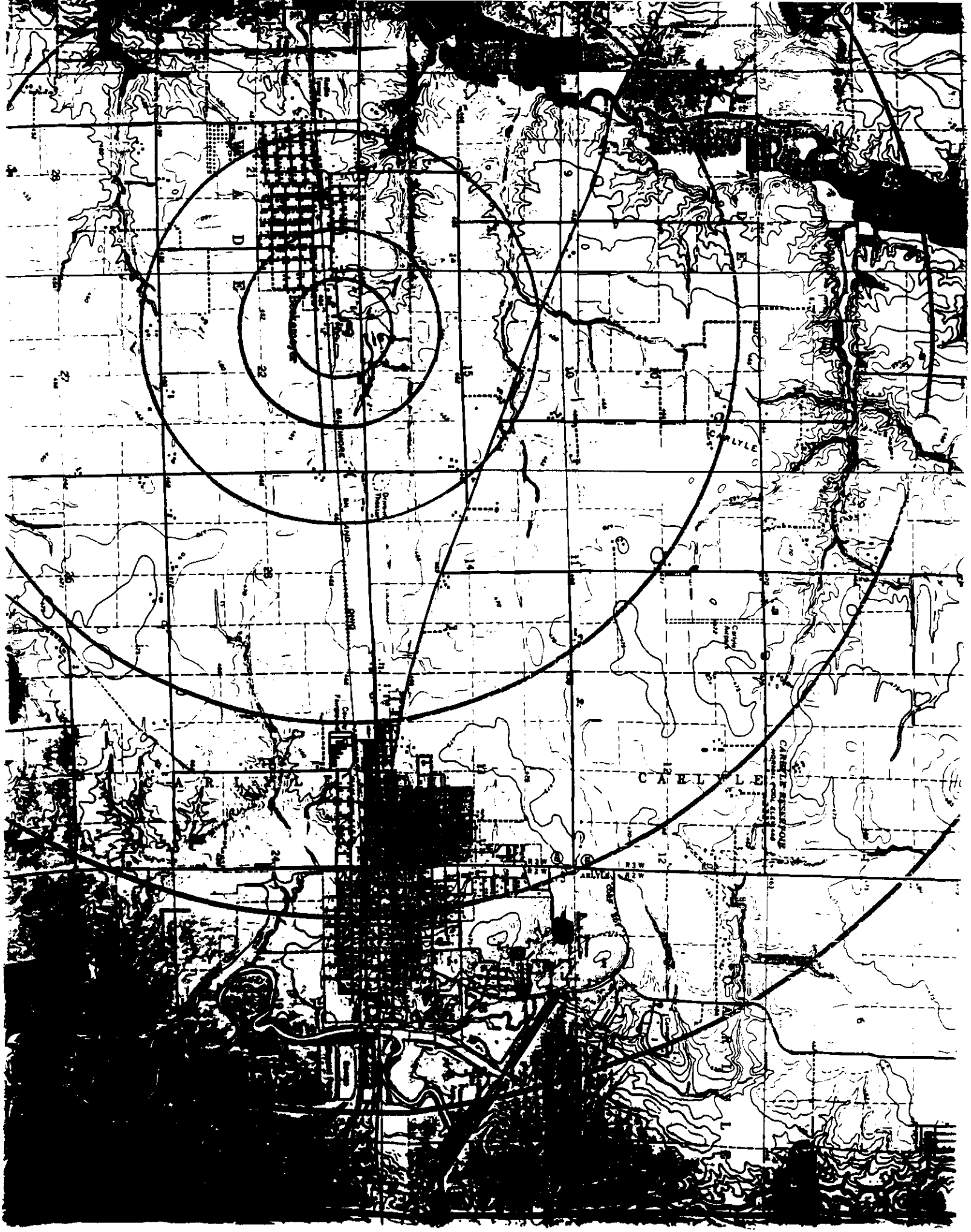
GD:jas/2909j,73-93

APPENDIX A

SITE 4-MILE RADIUS MAP

APPENDIX B

SITE 15-MILE SURFACE WATER MAP


CARLYLE
CARLISLE RESERVOIR
R3W
R2W

APPENDIX C

U. S. EPA FORM 2070-13



Site Inspection Report

EPA L0270200002

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE: IL | 02 SITE NUMBER: D050231976

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Circle Smelting Corporation	old Route 50

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Beckemeyer	IL	62219	Clinton	027	22

09 COORDINATES: LATITUDE 38 36 29.3 | LONGITUDE 89 25 20.3

10 TYPE OF OWNERSHIP (Check one): ■ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
07 / 26 / 88 (MONTH DAY YEAR)	■ ACTIVE ☐ INACTIVE	early 1900's (BEGINNING YEAR) ____ (ENDING YEAR) ____ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
■ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Greg Dunn	EPS I	IEPA	(217) 782-6761
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Ken Corkill	EPS III	IEPA	(217) 782-6761
Tim Murphy	EPS I	IEPA	(217) 782-6761
			()
			()
			()

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Dave Meyer	Plant Manager	old Route 50 Beckemeyer, IL 62219	(618) 227-5211
Charles Licht	Licht Engineering Consultant for Circle	PO Box 315 Olympia Fields, IL 60461	(312) 755-0075
			()
			()
			()
			()

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	8:30 AM	Overcast morning, Sunny afternoon Hot ≈ 90°

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Dennis Newman	IL EPA	(217) 782-6761

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Gregory W. Dunn	IEPA	RPMS	(217) 782-6761	10 / 17 / 88 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IL	D0502371976

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 250 — 04 NARRATIVE DESCRIPTION

Groundwater in the area is shallow with most wells obtaining water from 9 to 50 feet. The wells are in the rural area surrounding the facility.

01 ■ B. SURFACE WATER CONTAMINATION — 02 ■ OBSERVED (DATE: 1988) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Stream sediments taken from two areas off-site indicate heavy metal contamination. Both areas receive run-off from the site. No intakes exist within three miles of site, but streams may be used for recreational purposes.

01 ■ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 5004 — 04 NARRATIVE DESCRIPTION

Potential air contamination can come from air emissions produced from the facility. Since the early 1900's, observed air emissions have been noted by local residents and aerial photographs.

01 ■ D. FIRE/EXPLOSIVE CONDITIONS — 02 ■ OBSERVED (DATE: 7-21-86) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1296 — 04 NARRATIVE DESCRIPTION

Zinc shavings caught on fire in a building on-site. Seven to eight people were evacuated from their homes that are south of the facility.

01 ■ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1130 — 04 NARRATIVE DESCRIPTION

Potential for direct contact is high due to the lack of security measures at the site and the accessibility to the waste. Wind blown particulates could be a factor in direct contact, also.

01 ■ F. CONTAMINATION OF SOIL — 02 ■ OBSERVED (DATE: 1988) — ☐ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: Unknown (Acres) — 04 NARRATIVE DESCRIPTION

Soil samples collected from the area on the north side of the facility indicate significant heavy metal contamination above background levels.

01 ■ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 250 — 04 NARRATIVE DESCRIPTION

Potential for drinking water contamination exists from this site. Heavy metals leaching into the shallow aquifer could contaminate groundwater supplies for nearby residents. Beckemeyer residents obtain water from Lake Carlyle.

01 ■ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 30 — 04 NARRATIVE DESCRIPTION

Potential for worker exposure to heavy metals at site. Blood lead levels are monitored for workers, with no blood levels in excess of standards.

01 ■ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 5004 — 04 NARRATIVE DESCRIPTION

The potential for population exposure exists due to the amount of emissions and the levels of heavy metals found in the soil.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	D 050231976

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
■ C. AIR	027 813 44A	8-10-87	6-3-92	For Bagging Station - Baghouse
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
■ B. PILES	unknown	unknown
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
■ F. LANDFILL	unknown	unknown
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)	05 OTHER
☐ A. INCENERATION	■ A. BUILDINGS ON SITE
☐ B. UNDERGROUND INJECTION	
☐ C. CHEMICAL/PHYSICAL	
☐ D. BIOLOGICAL	
☐ E. WASTE OIL PROCESSING	06 AREA OF SITE
☐ F. SOLVENT RECOVERY	41 (Acres)
☐ G. OTHER RECYCLING/RECOVERY	
☐ H. OTHER (Specify)	

07 COMMENTS

The piles and landfill areas of the site have been cleaned up with most materials removed or re-used.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ■ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

No barriers surround site. Waste has been removed or reused.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ■ YES ☐ NO

02 COMMENTS

No security measures (barriers, fences etc) exist to deter access on to property. Soil samples indicate heavy metal contamination on the north side of the facility.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Illinois EPA Air Division Files
Illinois EPA Land Division Files.
SSI conducted on July 26, 1988

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	D 050 231 976

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. 10^{-6} – 10^{-8} cm/sec ■ B. 10^{-4} – 10^{-6} cm/sec ☐ C. 10^{-4} – 10^{-3} cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ■ B. RELATIVELY IMPERMEABLE (10^{-4} – 10^{-6} cm/sec) ☐ C. RELATIVELY PERMEABLE (10^{-2} – 10^{-4} cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
50 (ft)	Unknown (ft)	Unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
5 (in)	2.5 - 3.0 (in)	1 %	WNW	10 %

09 FLOOD POTENTIAL

SITE IS IN NA YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. NA (mi) OTHER: B. NA (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

NA (mi)

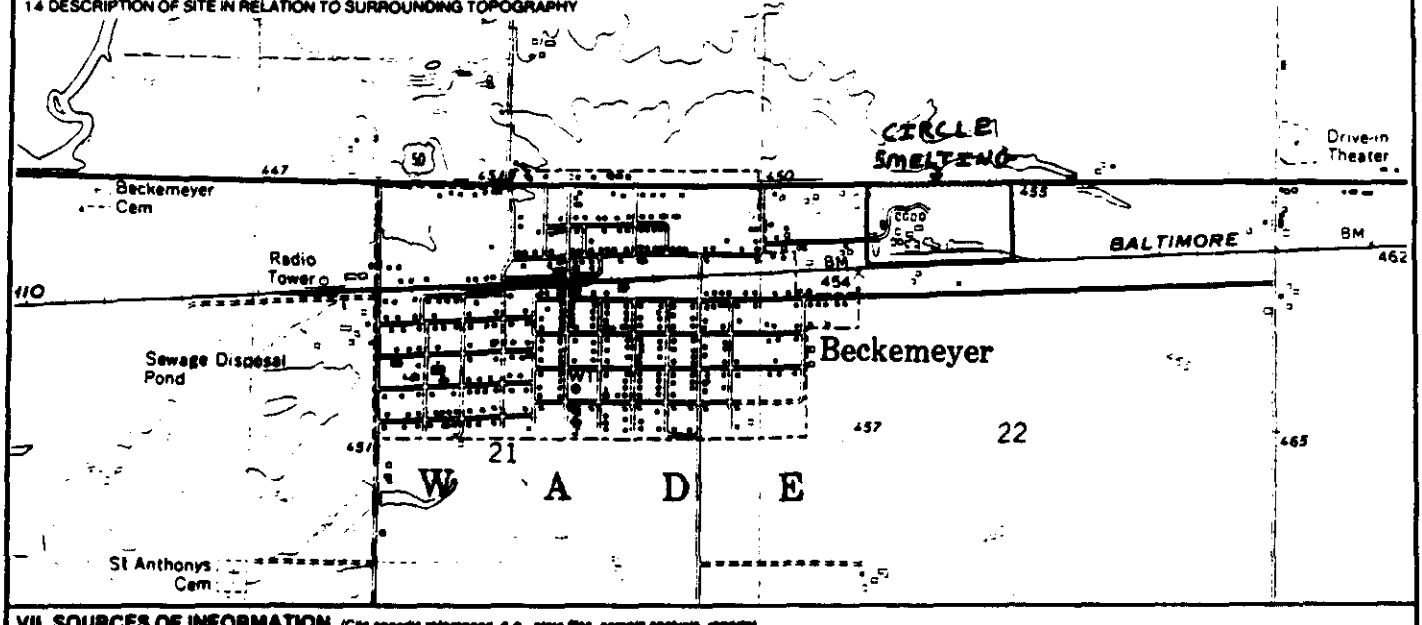
ENDANGERED SPECIES: NA

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 300 ft (mi)	B. 1200 ft (mi)	C. 1400 ft. (mi)	D. 800 ft (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY



VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Illinois EPA Land Division Files
Well logs from area.
ISGS & ISWS Cooperative Groundwater Report #9, 1982
USGS 1969, Beckemeyer, Illinois Quadrangle

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION
01 STATE: IL | 02 SITE NUMBER: D050231976

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	04 SIC CODE
Circle Smelting, Inc.		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE
Route 50	Berkemeyer	IL	62219

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	11 SIC CODE
Imperial Smelting Corp		

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	12 CITY	13 STATE	14 ZIP CODE
1031 East 103rd Street	Chicago	IL	60628

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE

08 NAME	09 D+B NUMBER	11 SIC CODE

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE

08 NAME	09 D+B NUMBER	11 SIC CODE

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE

08 NAME	09 D+B NUMBER	11 SIC CODE

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	04 SIC CODE
Five, Incorporated		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE
P.O. Box 111, Route 127 North	Carlyle	IL	62231

01 NAME	02 D+B NUMBER	04 SIC CODE
ASARCO, Inc.		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE
3422 S. 70 West	Salt Lake City	Ut	84119-4191

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Illinois EPA Land Division Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	D050231976

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Circle Smelting, Inc.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Route 50	

05 CITY	06 STATE	07 ZIP CODE
Beckemeyer	IL	62219

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IL	D050231976

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

APPENDIX D

U. S. EPA IMMEDIATE REMOVAL ACTION CHECKSHEET

IMMEDIATE REMOVAL ACTION CHECK SHEET

Site Name: Circle Smelting Corp. IL D050231976

	High	Moderate	Low
Fire and Explosion Hazard:			
Flammable Materials:		✓	
Explosives:			✓
Incompatible Chemicals:			✓
Direct Contact with Acutely Toxic Chemicals:			
Site Security:	✓		
Leaking Drums or Tanks:			✓
Open Lagoons or Pits:			✓
Materials on Surface:	✓		
Proximity of Population:	✓		
Evidence of Casual Site Use:		✓	
ontaminated Water Supply:			
Exceeds 10 Day Snarl:			✓
Gross Taste or Odors:			✓
Alternate Water Available:			✓
Potential Contamination:		✓	
Is the site abandoned or active? active			

Comments: Circle currently operates furnaces for smelting zinc skimmings and drosses. The site is not secure (no fences, barriers etc.) with known heavy metal contamination on facility property.

APPENDIX E

TARGET COMPOUND LIST

TARGET COMPOUND LIST

Volatile Target Compounds

Compound	Water CRDL	Soil/Solid CRDL
1. chloromethane	10 ug/l	10 ug/kg
2. bromomethane	10	10
3. vinyl chloride	10	10
4. chloroethane	10	10
5. methylene chloride	5	5
6. acetone	10	10
7. carbon disulfide	5	5
8. 1,1-dichloroethene	5	5
9. 1,1-dichloroethane	5	5
10. t-1.2-dichloroethene	5	5
11. 1,2-dichloropropane	5	5
12. chloroform	5	5
13. 1,2-dichloroethane	5	5
14. 2-butanone	10	10
15. 1,1,1-trichloroethane	5	5
16. carbon tetrachloride	5	5
17. vinyl acetate	10	10
18. dichlorobromomethane	5	5
19. c-1,3-dichloropropene	5	5
20. trichloroethene	5	5
21. benzene	5	5
22. chlorodibromomethane	5	5
23. 1,1,2-trichloroethane	5	5
24. t-1,3-dichloropropene	5	5
25. 2-chloroethyl vinyl ether	10	10
26. bromoform	5	5
27. 2-hexanone	10	10
28. 4-methyl-2-pentanone	10	10
29. 1,1,2,2-tetrachloroethane	5	5
30. tetrachloroethene	5	5
31. toluene	5	5
32. chlorobenzene	5	5
33. ethylbenzene	5	5
34. styrene	5	5
35. total xylenes	15	15

CRDL - Contract Required Detection Limit

Base/Neutral Target Compounds

Compound		Water CRDL	Soil/Solid CRDL
1.	Hexachloroethane	10 ug/l	330 ug/kg
2.	Bis (2-chloroethyl) ether	10	330
3.	Benzyl Alcohol	10	330
4.	Bis (2-chloroisopropyl) ether	10	330
5.	N-nitrosodi-n-propylamine	10	330
6.	Nitrobenzene	10	330
7.	Hexachlorobutadiene	10	330
8.	2-Methylnaphthalene	10	330
9.	1,2,4-trichlorobenzene	10	330
10.	Isophorone	10	330
11.	Naphthalene	10	330
12.	4-Chloroaniline	10	330
13.	Bis (2-chloroethoxy) methane	10	330
14.	Hexachlorocyclopentadiene	10	330
15.	2-chloronaphthalene	10	330
16.	2-Nitroaniline	50	1600
17.	Acenaphthylene	10	330
18.	3-Nitroaniline	50	1600
19.	Acenaphthene	10	330
20.	Dibenzofuran	10	330
21.	Dimethylphthalate	10	330
22.	2,6-Dinitrotoluene	10	330
23.	Fluorene	10	330
24.	4-Nitroaniline	50	1600
25.	4-Chlorophenyl-phenyl ether	10	330
26.	2,4-Dinitrotoluene	10	330
27.	Diethylphthalate	10	330
28.	N-Nitrosodiphenylamine	10	330
29.	Hexachlorobenzene	10	330
30.	Phenanthrene	10	330
31.	4-Bromophenyl-phenyl ether	10	330
32.	Anthracene	10	330
33.	Dibutylphthalate	10	330
34.	Fluoranthene	10	330
35.	Pyrene	10	330
36.	Butyl benzyl phthalate	10	330
37.	Bis (2-ethylhexyl) phthalate	10	330
38.	Chrysene	10	330
39.	Benzo (a) anthracene	10	330
40.	3,3'-Dichlorobenzidene	20	660
41.	Di-n-octyl phthalate	10	330
42.	Benzo (b) fluoranthene	10	330
43.	Benzo (k) fluoranthene	10	330
44.	Benzo (a) pyrene	10	330
45.	Indeno (1,2,3-cd) pyrene	10	330
46.	Dibenzo (a,h) anthracene	10	330
47.	Benzo (g,h,i) perylene	10	330
48.	1,2-Dichlorobenzene	10	330
49.	1,3-Dichlorobenzene	10	330
50.	1,4-Dichlorobenzene	10	330

Acid Target Compounds

Compound	Water CRDL	Soil/Solid CRDL
1. Benzoic Acid	50 ug/l	1600 ug/kg
2. Phenol	10	330
3. 2-chlorophenol	10	330
4. 2-nitrophenol	50	1600
5. 2-methylphenol	10	330
6. 2,4-dimethylphenol	10	330
7. 4-methylphenol	10	330
8. 2,4-dichlorophenol	10	330
9. 2,4,6-trichlorophenol	10	330
10. 2,4,5-trichlorphenol	50	1600
11. 4-chloro-3-methylphenol	10	330
12. 2,4-dinitrophenol	50	1600
13. 2-methyl-4,6-dinitrophenol	50	1600
14. Pentachlorophenol	50	1600
15. 4-nitrophenol	50	1600

Pesticide Target Compounds

Compound	Water CRDL	Soil/Solid CRDL
1. alpha-BHC	.05 ug/l	8.0 ug/kg
2. beta-BHC	.05	8.0
3. delta-BHC	.05	8.0
4. Lindane (gamma-BHC)	.05	8.0
5. Heptachlor	.05	8.0
6. Aldrin	.05	8.0
7. Heptachlor epoxide	.05	8.0
8. Endosulfan I	.05	8.0
9. 4,4'-DDE	.10	16.0
10. Dieldrin	.10	16.0
11. Endrin	.10	16.0
12. 4,4'-DDD	.10	16.0
13. Endosulfan II	.10	16.0
14. 4,4'-DDT	.10	16.0
15. Endrin aldehyde	.10	16.0
16. Endosulfan sulfate	.10	16.0
17. Methoxychlor	.50	80.0
18. Chlordane	.50	80.0
19. Toxaphene	.50	80.0
20. Arochlor-1016	1.0	160.0
21. Arochlor-1221	.50	80.0
22. Arochlor-1232	.50	80.0
23. Arochlor-1242	.50	80.0
24. Arochlor-1248	.50	80.0
25. Arochlor-1254	1.0	160.0
26. Arochlor-1260	1.0	160.0

Inorganic Target Compounds

Metals Analyses (CRDL)-ug/l*	
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Manganese	15
Mercury	0.2
Nickel	40
Selenium	5
Silver	10
Thallium	10
Vanadium	50
Zinc	20

Other Inorganics
Cyanide
Sulfide
Phenols
Nitrogen-Ammonia
Nitrogen, Total Kjeldahl
Nitrogen-Nitrate
Boron
pH

*Any analytical method specified in the Quality Assurance Project Plan (QAPP) may be utilized as long as the documented instrument or method detection limits meet the Contract Required Detection Level requirements. Higher detection levels may only be used in the following circumstance:

If the sample concentration exceeds two times the detection limit of the instrument or method in use, the value may be reported even though the instrument or method detection limit may not equal the CRDL. This is illutrated in the example below:

For lead:

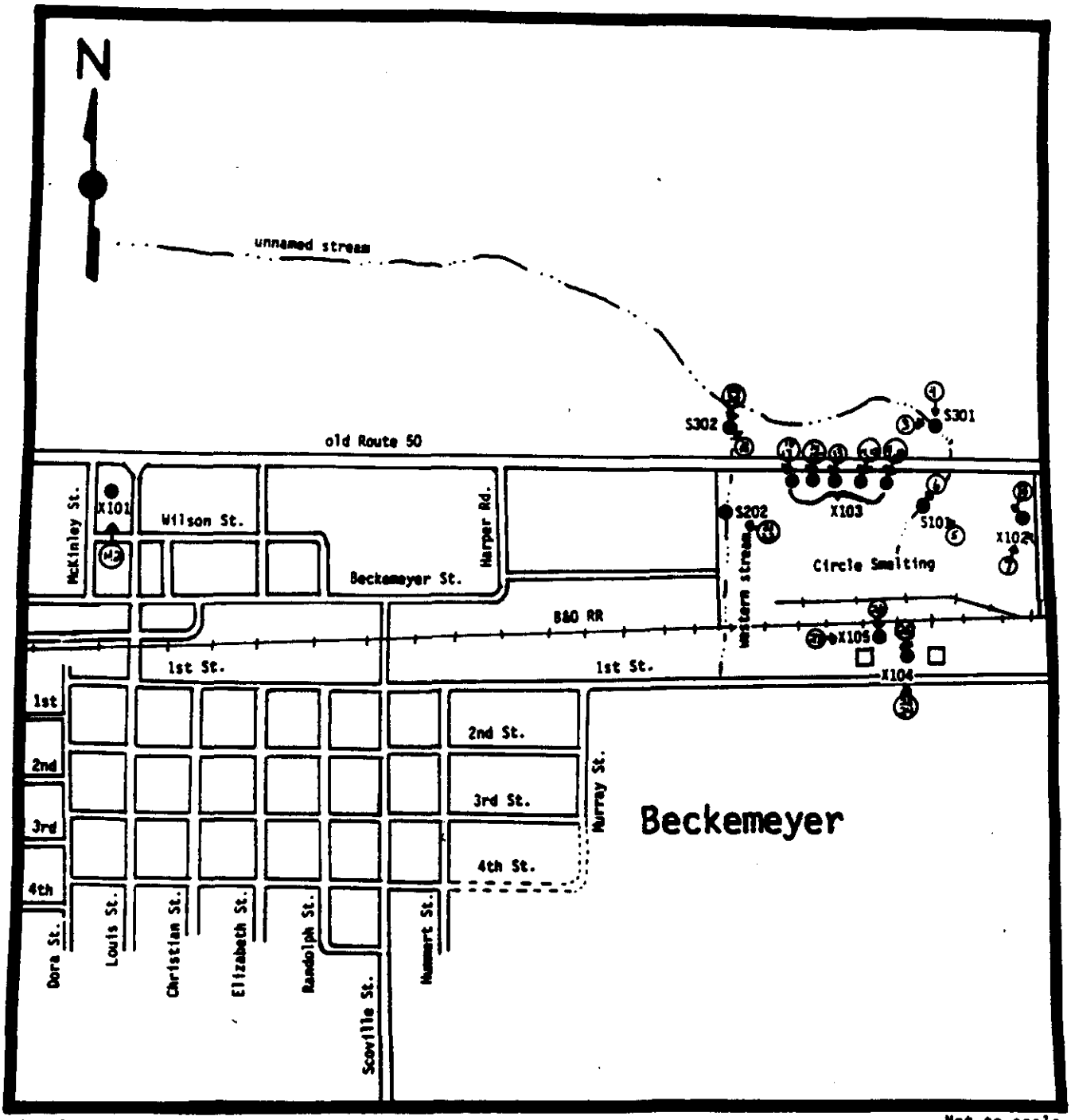
Method in use -- ICP
Instrument Detection Limit (IDL) = 40
Sample Concentration = 85
Contract Required Detection Level (CRDL) = 5

The value of 85 may be reported even though instrument detection limit is greater than required detection level. The instrument or method detection limit must be documented as described in Form IIIX.

These CRDL are the instrument detection limits obtained in pure water that must be met using ICP/Flame AA or Furnace AA. The detection limits for samples may be considerably higher depending on the sample matrix.

APPENDIX F

IEPA SITE PHOTOGRAPHS



SOURCE: IEPA, 1988.

Not to scale

PHOTOGRAPH LOCATION MAP

DATE: Jul 26, 1988

TIME: 7:30 am

Photograph by:

[illegible]

Location: ILD 05C 23 1976

Lead Acid Battery Chunks

Circle Smelting Corp

Comments: Picture taken toward

northwest at Sample

Site #1

2



DATE: Jul 26, 1988

TIME: 7:30 am

Photograph by:

[illegible]

Location: Lead Acid Battery Chunks

Circle Smelting Corp

ILD 05C 23 1976

Comments: Picture taken toward

North northwest at

Sample Site #1

3



DATE: July 26, 1988

TIME: 9:52 am

Photograph by:

Greg Drew

Location: ILD050231976

Circle Smelting Corp

Comments: Picture taken toward

east at sample point

S301 north of old

Route 50

(3)



DATE: July 26, 1988

TIME: 9:52 am

Photograph by:

Greg Drew

Location: ILD050231976

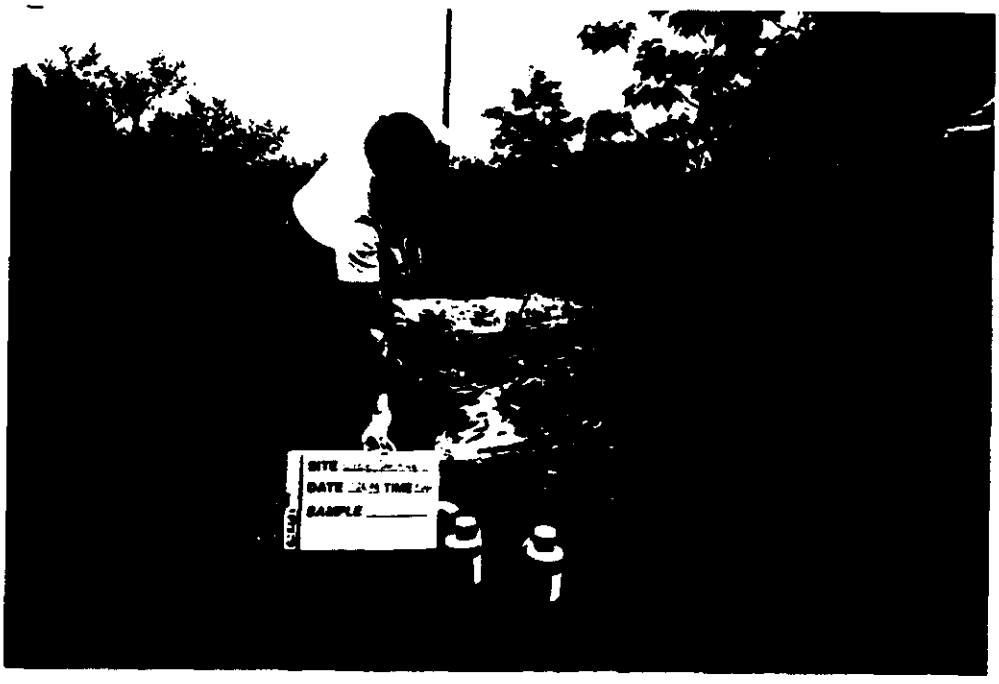
Circle Smelting Corp.

Comments: Picture taken toward

South at S301 looking

toward old Route 50.

(4)



DATE: July 26, 1988

TIME: 10:14 am

Photograph by:

Greg Brown

Location: ILD 023197C

CO270200002 - Chemco

Circle Smelting Corp

Comments: Picture taken toward

northwest at sample

point S101

(5)



DATE: July 26, 1988

TIME: 10:14 am

Photograph by:

Greg Brown

Location: CO270200002

Circle Smelting Corp.

ILD 023197C

Comments: Picture taken toward

Southwest at sample

point S101 with

Circle in background

(6)



DATE: July 26, 1998

TIME: 10:45 am

Photograph by:

Greg Downs

Location: IL0050231976

L0270200002 -- Clarke Co

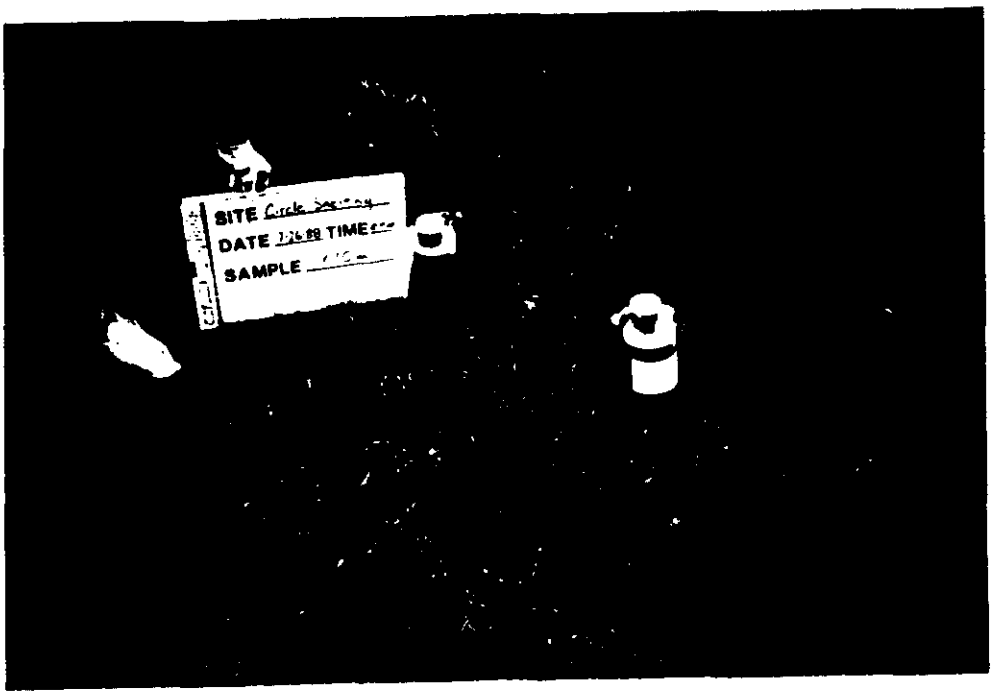
Circle Smelting Corp

Comments: Picture taken toward

Northeast at sample

point X102

D



DATE: July 26, 1998

TIME: 10:45 am

Photograph by:

Greg Downs

Location: L0270200002

Circle Smelting Corp.

IL0050231976

Comments: Picture taken toward

Southwest at sample

point X102. Circle Smelting

is in the background.

D



DATE: Jul 26, 995

TIME: 11:15 Am

Photograph by:

Craig Dunn

Location: ILD05023197C

Circle Smelting Corp

Comments: Picture taken toward

Southwest at sample

point #10 for

composite AREA

(1)



DATE: Jul 26, 995

TIME: 11:15 Am

Photograph by:

Craig Dunn

Location: ILD980620002

Circle Smelting Corp

ILD05023197C

Comments: Picture taken toward

Southwest at Sample

Point #10 for

composite AREA

(10)



DATE: July 26 1988

E: 11:15 am

Photograph by:

Greg Dunn

Location: FED OSC 23,976

Lead Smelting Corp

Comments: Picture taken toward

South-Southwest at the

Second composite AREA for

Sample Point #103

(11)



DATE: July 26, 1988

TIME: 11:15 AM

Photograph by:

Greg Dunn

Location: Lead Smelting Corp
FED OSC 23,976

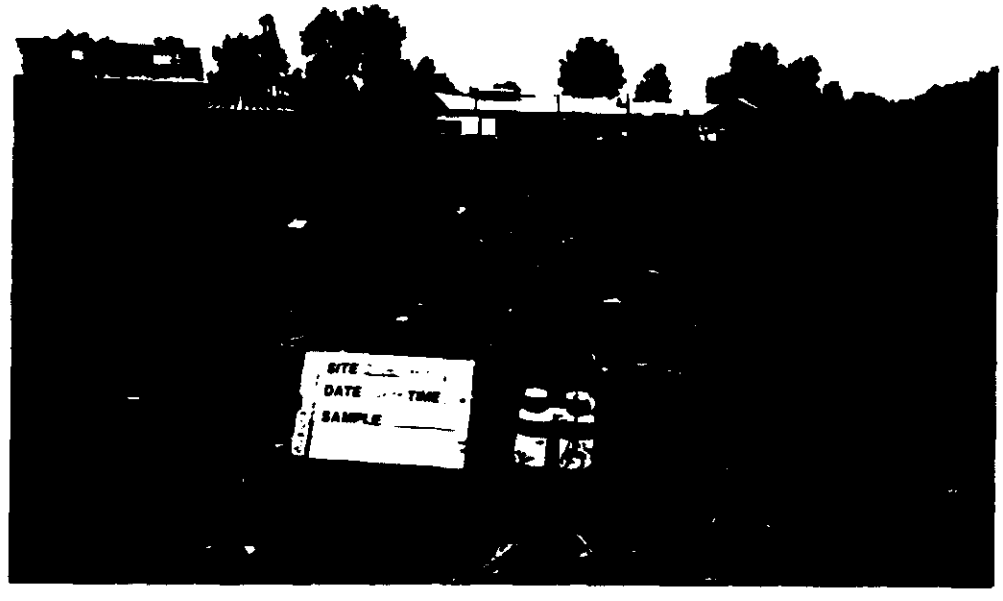
Comments: Picture taken toward

South-Southwest at the

Second composite area for

Sample Point #103

(12)



DATE: July 26, 1988

TIME: 11:15 am

Photograph by:

Greg Dunn

Location: ILD0SC23197C

(027)CC0002 -- Clarke

Circle Smelting Corp.

Comments: Picture taken toward

South Southwest at the third

composite area for sample

number X103

(13)



DATE: July 26, 1988

TIME: 11:15 am

Photograph by:

Greg Dunn

Location: (027)CC0002

Circle Smelting Corp

ILD0SC23197C

Comments: Picture taken toward

Southwest at the fourth

composite area for

Sample Number X103

(14)



DATE: July 26, 1988

TIME: 11:15 am

Photograph by:

Greg Dunn

Location: ILD 000 231 976

L0270200002 -- Clarke Co

Circle Smelting Corp

Comments: Picture taken toward

South - Southwest at the

South composite area for

Sample point #103

(3)



DATE: July 26, 1988

TIME: 11:15 am

Photograph by:

Greg Dunn

Location: L0270200002

Circle Smelting Corp

ILD 000 231 976

Comments: Picture taken toward

South - South West at the

Fifth composite area for

Sample point #103

(16)



DATE: July 26, 1993

TIME: 11:15 am

Photograph by:

Greg Lowe

Location: ED 050 23 1976

Lead Acres -- Clayton &

Circle Smelting Corp.

Comments: Picture taken toward

South at the CELL

Composite used for

Sample point S103

(9)



DATE: July 26 1993

TIME: 11:35 am

Photograph by:

Greg Lowe

Location: Lead Acres

Circle Smelting Corp

ED 050 23 1976

Comments: Picture taken toward

northwest at Sample

point S302

(8)



DATE: July [illegible]

TIME: 11:15am

Photograph by:

[illegible]

Location: [illegible]

[illegible]

[illegible]

Comments: Picture taken toward

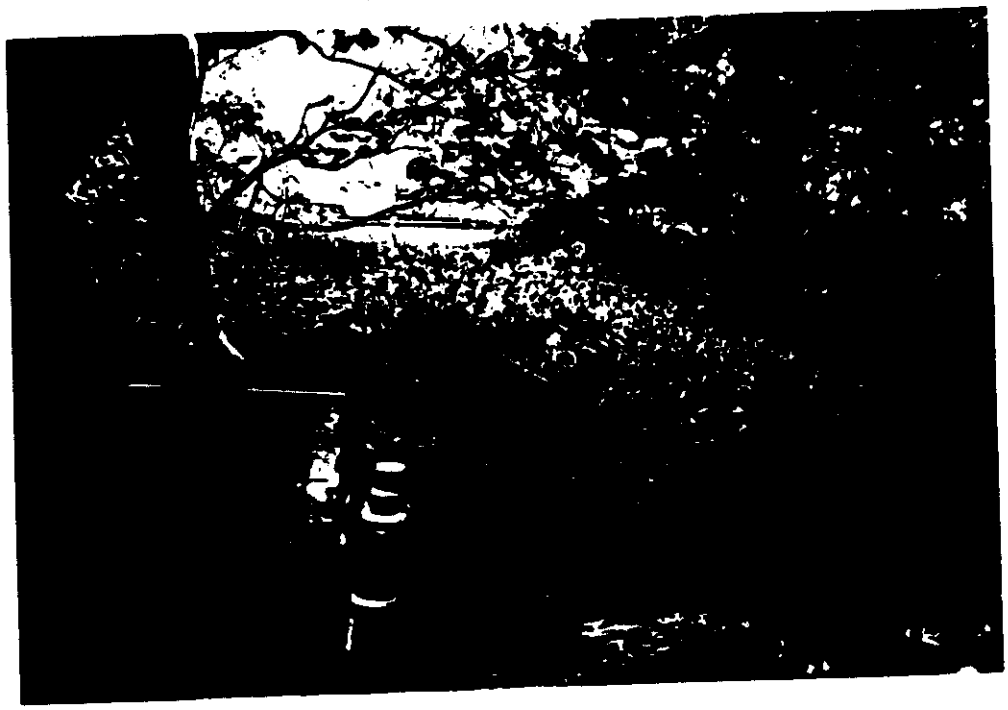
[illegible]

[illegible]

[illegible]

[illegible]

(19)



DATE: July 26, 1978

TIME: 11:15am

Photograph by:

[illegible]

Location: [illegible]

Circle Smelting Corp

FID 050231976

Comments: Picture taken toward

South from 3rd/4th

[illegible]

(20)



DATE: [illegible]

E: [illegible]

Photograph by:

[illegible]

Location: [illegible]

[illegible]

[illegible]

Comments: Picture taken toward

[illegible]

[illegible]

(1)



DATE: [illegible]

TIME: [illegible]

Photograph by:

[illegible]

Location: [illegible]

[illegible]

[illegible]

Comments: Picture taken toward

[illegible]

[illegible]

(2)



DATE: July 26 '88

TIME: 1:15 pm

Photograph by:

Tim Murphy

Location: ILD 050 231 976

Lead Acres -- Cooke Co

Cerro Smelting Corp

Comments: Picture taken toward

north-northwest at sample

point X104 - Ramon

from Tinkers creek

(23)



DATE: July 26 '88

TIME: 1:20 pm

Photograph by:

Tim Murphy

Location: Lead Acres

Cerro Smelting Corp.

ILD 050 231 976

Comments: Picture taken toward

north at sample

point X104

(24)



DATE: July 26, 1999

TIME: 1:20 pm

Photograph by:

Greg Dunn

Location: ILD 050 23 1976

Circle Smelting Corp.

Comments: Picture taken toward

Southeast at Sample

point #14. Trailer

2 inches on left side

of photo

(25)



DATE: July 26, 1999

TIME: 1:38 pm

Photograph by:

Greg Dunn

Location: ILD050231976

Circle Smelting Corp.

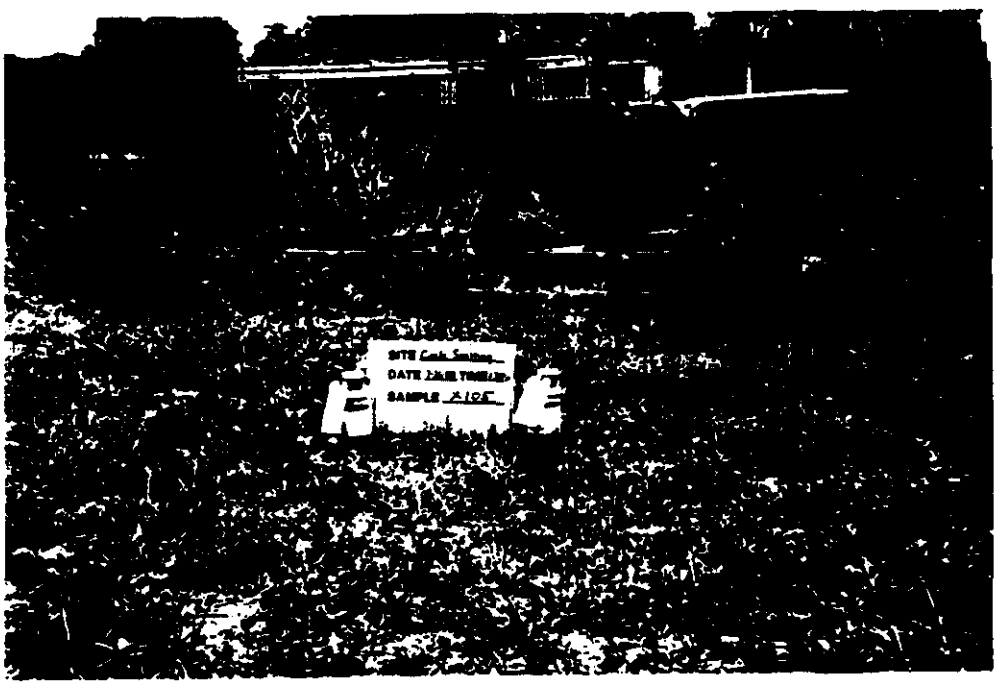
Comments: Picture taken toward

South at sample point

X105. Trailer is in

Brenda's backyard

(26)



DATE: July 26 98

TIME: 1:38 pm

Photograph by:

Greg Nixon

Location: IL0 052 23 1976

Lead Acid Battery - Chisholm

Circle Smelting Corp.

Comments: Picture taken toward

east northeast at sample

point #105. Circle

Smelting is in the

background

(27)



DATE: _____

TIME: _____

Photograph by:

Location: _____

Comments: Picture taken toward

APPENDIX G

CHEMICAL ANALYSIS DATA OF IEPA COLLECTED SAMPLES

Circle Smelting Corp.
S.F. Tech Reports

ARDL inc.

applied research & development laboratory

CHEMISTRY • BIOLOGY • PHYSIOLOGY
ENGINEERING • ENVIRONMENTAL ANALYSIS

29 September 1988

Original Lab Rpt

Ms. Sue Doubit
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62706

SUBJECT: Data Package
Circle Smelting Corp.
ARDL ID: 200052
Site Inventory No.: 0270200002

Dear Ms. Doubit:

Enclosed please find ARDL's data package for analyses performed on samples delivered to our laboratory by IEPA personnel on 26 Jul 88. The data package consists of the following:

1. Letter of Transmittal

2. Tabulated Analytical Results

3. Chain-of-Custody Documentation

4. Data Package

 a. Volume 1 - Inorganic Data Package
 b. Volume 2 - Organic Sample Data Summary Package
 c. Volume 3 - Volatiles Analysis Data Package
 d. Volume 4 - Semi-Volatiles Analysis Data Package
 e. Volume 5 - Pesticide/PCB's Analysis Data Package

We appreciate the opportunity to be of service to the IEPA.

Thank you.

Sincerely yours,

Daniel J. Gillespie

Daniel J. Gillespie
Technical Services Manager

DJG/clf

Enclosures

RECEIVED
OCT 7 1988
IEPA-DLPC

P.O. Box 1566 • 1801 W. Forest Street • Mt. Vernon, Illinois 62864 • (618) 244-3235
"Test Everything - Keep The Good" 1 Thes. 5:21

Page 1 of 1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL
CHAIN OF CUSTODY

I certify that the samples listed below were collected in my presence and that each sample bottle was sealed intact by me and that I wrote my initials and the date on the seal of each bottle.

Site Inventory No. 0270200002 County Clinton

Federal I.D. No. ILD050231976 Circle Smelting Corporation (Facility Name)

SAMPLING TEAM

Sample No.	Initials	Consisting of the Indicated No. of Bottles	Date Collected	Time Sealed
X101	GWD	4	7-26-88	11:25 AM/PM
S101	GWD	4	7-26-88	11:25 AM/PM
S301	GWD	4	7-26-88	11:25 AM/PM
X102	GWD	4	7-26-88	11:25 AM/PM
X103	GWD	4	7-26-88	11:25 AM/PM
S302	GWD	4	7-26-88	1:50 AM/PM
S202	GWD	4	7-26-88	1:50 AM/PM
~~S102~~	~~GWD~~	4	~~7-26-88~~	AM/PM
X104	GWD	4	7-26-88	1:50 AM/PM
X105	GWD	4	7-26-88	1:50 AM/PM

Sealer's Signature Gregory W. [illegible] Date 7-26-88 Time 1:50 AM/PM

Sampler(s) Ben Corbell Timothy J. Murphy

I certify I received the above samples, with each seal on each bottle intact and the sealer's initials written on each sample seal.

CARRIERS

Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time
		AM/PM			AM/PM
		AM/PM			AM/PM
		AM/PM			AM/PM
		AM/PM			AM/PM
		AM/PM			AM/PM
		AM/PM			AM/PM
		AM/PM			AM/PM

LAB CUSTODIAN

I certify I received the above samples with each seal on each bottle intact, and the sealer's initials written on each sample seal. After recording these samples in the official record book, these same samples will be in the custody of competent laboratory personnel at all times or locked in a secured area.

Signature [illegible] Date 7/26/88 Time 3:20 A.M./P.M.

Lab Location Mt Vernon, IL (City)

IEPA - ILP
CHAIN OF CUSTODY

Seal #: 3533

Date Sealed: 7/25/88 By: MWD

Facility
Name: CIRCLE SMELTING CORP.
Region: SOUTHERN
Unit: CARBON

Site Inventory #: [illegible]
Site Billing Code: EA-IE
Project Manager: [illegible]

LABORATORY #	SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME
200052-[illegible]	S101	7-26-88	10:13 AM - MW

Sample Appearance: Brown sandy silt

30 DAY TURNAROUND

[illegible] IEPA

CONTAINER		ANALYSIS		
No.	Type			
1	32oz Clear Glass	BNA, PEST/PCB	N	7-26-88 10:17 AM
1	32oz Clear Glass	TOTAL METALS, CYANIDE, SULFIDES, SULFATES, MERCURY	N	7-26-88 10:16 AM
1	40ml Clear Glass	VOA	N	7-26-88 10:13 AM

CHAIN OF CUSTODY RECORD

Relinquished by: Gregory W. Dunn Signature: Gregory W. Dunn
Date: 7-26-88 Time: 9:00 AM Seal #: 3533 Rec'd by: C

Relinquished by: Gregory W Dunn Signature: Gregory W. Dunn
Date: 7-26-88 Time: 11:25 AM Seal #: 3534
Rec'd by: IEPA Delivery to Lab.

Courier - sample[illegible]

I certify that I received the [illegible] from [illegible] of the shipping container and seal intact and that each bottle in the shipping [illegible] Official Record Book, the sample will be in the custody of competent laboratory [illegible]

Opened by (print): [illegible] Signature: [illegible]

Date: 7/26/88 [illegible] Intact?: (Y) / N

Lab Name: [illegible]

3

Name: PEORIA SMELTING CORP | Site Inventory #: [illegible]
Region: SOUTHERN | Site Billing Code: EA-DE
County: FULTON | Project Manager: GREG DUNN

LABORATORY #	SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME
200052[redacted]	S202	7-26-88	12:17pm-12:

Sample Appearance: Grey silty material with some SAND

30 DAY TURNAROUND

Gregory W. Dunn — IEPA

[illegible]	[illegible]	DNA, PEST/PCB	N	7-26-88 12:19
[illegible]	[illegible]	TOTAL METALS, CYANIDE, SULFIDES SULFATES, MERCURY	N	7-26-88 12:18
[illegible]	[illegible]	VOA	N	7-26-88 12:17p

CHAIN OF CUSTODY CHRONICLE

Gregory W Dunn	Gregory W. Dunn		
7-26-88	11:39AM	3529	O
Gregory W. Dunn	Gregory W. Dunn		
7-26-88	1:50 pm	3530	

Received at: IEPA Delivery to Lab

Received at: IEPA Delivery

I certify that I received the sample [illegible] that each bottle in the shipping container [illegible] the custody of competent laboratory personnel [illegible]

Opened by (print): [illegible] Signature: [illegible]

Date: 7/26/88 Time: [illegible] Cooler #: [illegible] Intact: Y / N

Lab Name: ARDL [illegible]

IEPA - CLP
CHAIN OF CUSTODY

Seal #: 3533

Date Sealed: 7/25/88 By: AW

Facility
Name: CIRCLE SMELTING CORP.
Region: SOUTHERN
County: CLINTON
Site Inventory #: [illegible]
Site Billing Code: SA-05
Project Manager: GREG DUNN

LABORATORY #	SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME
20065	S301	7-26-88	9:45am - 9:51am

Sample Appearance: Brown sandy Soil

Turnaround Time: 30 DAY TURNAROUND

Relinquished by: Gregory W. Dunn Agency: IEPA

No.	Container Code	Size	Preservative	Analysis	Filtered	Date	Time
1	S	32oz		BNA, PEST/PCB	N	7-26-88	9:50 am
1	S	32oz		TOTAL METALS, CYANIDE, SULFIDES, SULFATES, MERCURY	N	7-26-88	9:51 am
2	VO	40z		VOA	N	7-26-88	9:45 a.

Relinquished by: Gregory W. Dunn Signature: Gregory W. Dunn
Date: 7-26-88 Time: 9:00 am Seal #: 3533 Cooler #: 0

Received by: Gregory W Dunn Signature: Gregory W. Dunn
Date: 7-26-88 Time: 11:25 Am Seal #: 3534
Purpose of sample pickup: IEPA Delivery to Lab

Courier: [illegible]

I certify that I received the following container from the courier listed above with the shipping container and seal intact and that each bottle in the shipping container was intact. After recording the sample in the official record book, the sample will be kept in the custody of [illegible] at all times or locked in a secured area.

Opened by (print): Tim Gillespie Signature: Tim Gillespie
Date: 7/26/88 Seal #: [illegible] Intact?: (Y) / N
Lab Name: [illegible]

IEPA - DLP
CHAIN OF CUSTODY

Seal # 3529

Date Sealed: 7/25/88 By: AWL

Facility
Name: CIRCLE SMELTING CORP
Region: SOUTHERN
County: CLINTON

Site Inventory #: [illegible]
Site Billing Code: SM-08
Project Manager: GREG DUNN

LABSTORY #	SAMPLE ID	SAMPLE DATE	SAMPLE TIME
200052 [redacted]	5302	7-26-88	11:50AM - 11:36A

Sample Appearance: Black to Grey silty Sand.

30 DAY TURNAROUND

Gregory W Dunn — IEPA

CONTAINER		PRESERVED		
#	TYPE	SIZE	PRES	
1	PODZ		ENA, REST/ICE	N 7-26-88 11:56AM
1	PODZ		TOTAL METALS, CYANIDE, SULFIDES SULFATES, MERCURY	N 7-26-88 11:53AM
1	[illegible]		VOA	N 7-26-88 11:50AM

Gregory W Dunn — Gregory W Dunn
7-26-88 — 11:33 AM — 3529

Gregory W. Dunn — Gregory W. Dunn
7-26-88 — 1:50pm — 3530
IEPA Delivery to Lab

Courier - sample [redacted]

I certify that I received the [redacted] containers listed from the custody of [redacted] containing container and seal intact and that each bottle in the [redacted] matches [redacted] on the chain of custody record. The sample will be in the custody of competent [redacted]

Opened by (print): [redacted]

Date: 7/26/88

Lab Name: [redacted]

IEPA - DLP
CHAIN OF CUSTODY

Seal #: 3533

Date Sealed: 7/25/88 By: AWV

Facility
Name: CIRCLE SMELTING CORP.
Region: SOUTHERN
County: JEFFERSON

Site Inventory #: [illegible]
Site Billing Code: SA-DE
Project Manager: GREG DUNN

LABORATORY #	SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME
200052-[illegible]	X101	7-26-88	9:15 AM - 9:19 AM

Sample Appearance: Brown silty loam

30 DAY TURNAROUND

Relinquished by: Gregory W. Dunn Received by: IEPA

CONTAINER		ANALYSIS	PRES	DATE	TIME
No.	Type Size Pres.				
3	32oz	BNA, PEST/PCB	N	7-26-88	9:18AM
3	32oz	TOTAL METALS, CYANIDE, SULFIDES SULFATES, MERCURY	N	7-26-88	9:19AM
1	8oz	VOA	N	7-26-88	9:15AM

Relinquished by: Gregory W. Dunn Signature: Gregory W. Dunn
7-26-88 Time: 9:00 AM Seal #: 3533 Received by: C

Relinquished by: Gregory W. Dunn Signature: Gregory W. Dunn
7-26-88 Time: 11:25 AM Seal #: 3534
Received by: IEPA Delivery to lab

Courier - sample [illegible] Greg [illegible]

I certify that I received the sample [illegible] container and seal intact and that each bottle in the shipping container [illegible]. The sample will be in the custody of competent laboratory personnel [illegible]

Opened by (print): [illegible] Signature: [illegible]

Date: 7/26/88 Time: [illegible] Seal: Y / N

Lab Name: [illegible]

IEPA - DLP
CHAIN OF CUSTODY

Seal # 3533

Date Sealed 7/25/88 K.W.D.

Facility
Name CIRCLE SMELTING CORP.
Region SOUTHERN
Town ELKTON

Site Inventory # ILD980501116
Site Billing Code BA-SE
Project Manager GREG DUNN

LABORATORY #	SAMPLE #	SAMPLE DATE	SAMPLE TIME
200052	X102	7-26-88	10:37 am - 10:42

Sample Appearance: Brown silty Clay

30 DAY Turnaround

Sampler: Gregory W. Dunn For: IEPA

CONTAINER Type	Size	Preservative	ANALYSIS REQUIRED		
G	250z		BNA, TEST/PCB	N	7/26/88 10:42 AM
G	120z		TOTAL METALS, CYANIDE, SULFIDES SULFATES, MERCURY	N	7-26-88 10:41 AM
G	40z		VOA	N	7-26-88 10:37 AM

Gregory W. Dunn
7-26-88 Time 9:00 AM Seal # 3533 C

Gregory W. Dunn
7-26-88 Time 11:25 AM Seal # 3534
Sample picked up IEPA Delivers to Lab

Courier - sampler: Greg Dunn

I certify that I received the sample(s) listed in this manner from the courier listed above with the shipping container and seal intact and that each bottle in the shipping container was intact. After recording the sample in the official record book, the sample will be in the custody of competent [illegible] at all times or locked in a secure area.

Opened by (print): [redacted] Signature: [redacted]

Date: 7/26/88 Seal #: [redacted] Intact? (Y) / N

Lab Name: [redacted]

IEPA - DLP
CHAIN OF CUSTODY

Seal #: 3533

Date Sealed: 7/25/88 By: AWU

Facility
Name: CIRCLE SMELTING CORP
Region: SOUTHERN
County: CLINTON

Site Inventory #: 0270[illegible]
Site Billing Code: SA-06
Project Manager: GREG DUNN

LABORATORY #	SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME
200052[illegible]	X103	7-26-88	11:03Am

Sample Appearance: Brown to black S.Lty Sand

30 DAY TURNAROUND Composite sample

Megan W. Dunn IEPA

No.	Container Type	Preservative	Analysis Required			
1	8oz		SNA, PEST/PCB	N	7-26-88	11:12Am
1	8oz		TOTAL METALS,CYANIDE,SULFIDES SULFATES,MERCURY	N	7-26-88	11:12Am
1	4oz		COA	N	7-26-88	11:05Am

Gregory W. Dunn Gregory W. Dunn
7-26-88 Time: 9:00Am Seal #: 3533 O

Gregory W. Dunn Gregory W. Dunn
7-26-88 Time: 11:25Am Seal #: 3534
Remarks: IEPA Delivery to Lab

Courier - sample delivery: Greg Dunn

I certify that I received the samples listed on the chain of custody from the courier listed above with the shipping container and seal intact and that each bottle in the shipping container was sealed. After recording the samples in the official record book, the samples will be in the custody of competent laboratory personnel at all times or locked in a secured area.

Opened by (print): [illegible] Signature: [illegible]

Date: 7/26/88 Time: [illegible] Seal #: [illegible] Intact? (Y) / N

Lab Name: [illegible] Comments: [illegible]

IEPA - DLP
CHAIN OF CUSTODY

Seal #: 3529

Date Sealed: 7/25/88 By: AWU

Facility
Name: PEORIA SMELTING CORP
Region: SOUTHERN
County: PEORIA

Site Inventory #: [illegible]
Site Billing Code: BA-05
Project Manager: GREG DUNN

LABORATORY #	SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME
200052 [redacted]	X104	7-26-88	1:15pm - 1:19pm

Sample Appearance: Grey to brown Silty Sand

30 DAY Turnaround

Gregory W. Dunn — IEPA

NO.	CONTAINER Code	Size	Preservative	ANALYSIS REQUIRED		
1	G	32oz		BNA, PEST/PCB	~	7-26-88 1:19pm
1	G	32oz		TOTAL METALS, CYANIDE, SULFIDES	~	7-26-88 1:17pm
				SULFATE, HERDAY		
2	G	2oz		VOA	~	7-26-88 1:15pm

Gregory W. Dunn — Gregory W. Dunn
7-26-88 — 11:33 AM — 3529

Gregory W. Dunn — Gregory W. Dunn
7-26-88 — 1:50 pm — 3530
IEPA Delivery to lab

Courier — sample [redacted] Depot Delivery

I certify that I received [redacted] from the courier listed above with the [redacted] container and seal intact and that each bottle is there [redacted]. After recording the sample in the [redacted] book, the sample will be in the custody of competent [redacted] at least [redacted] sealed with a secured seal.

Opened by (print): [redacted] Signature: [redacted]

Date: 7/26/88 Seal #: [redacted] Intact? (Y) / N

Lab Name: [redacted] Courier: [redacted]

IEPA - CLP
CHAIN OF CUSTODY

Seal #: 3529

Date Sealed: 7/25/88 By: AWV

Facility
Name: CIRCLE SMELTING CORP.
Region: SOUTHERN
County: CLINTON

Site Inventory #: 0270200002
Site Billing Code: SA-08
Project Manager: GREG DUNN

SAMPLE #	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME
200058	X105	7-26-88	1:32pm - 1:37pm

Sample Appearance: Silty Brown to Dark Brown

30 DAY TURNAROUND

Relinquished By: Gregory W. Dunn Received By: IEPA

CONTAINER NO.	TYPE, SIZE, PRES.	ANALYSIS		
1	32oz	BNA, PEST/PCB	N	7-26-88 1:35pm
1	32oz	TOTAL METALS, CYANIDE, SULFIDES, SULFATES, MERCURY	N	7-26-88 1:37pm
1	16oz	VOA	N	7-26-88 1:32pm

Relinquished By: Gregory W. Dunn Received By: Gregory W. Dunn
Date: 7-26-88 Time: 11:33Am Seal #: 3529 Temp: C

Relinquished By: Gregory W. Dunn Received By: Gregory W. Dunn
Date: 7-26-88 Time: 1:50pm Seal #: 3530
Remarks: IEPA Deliver to lab.

Courier - sample delivered by: [redacted]

I certify that I received the samples listed on the sample tag(s) from the sample custodian in the shipping container and seal intact on that each bottle in the shipping container was sealed after recording the sample number in my bound notebook; the sample will be in the custody of competent laboratory personnel until [redacted].

Opened by (print): [redacted] Signature: [redacted]

Date: 7/26/88 Seal #: [redacted] Intact: (Y) N

Lab Name: [redacted]

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: S101

Matrix (soil/water): Soil Lab Sample ID: 200052-1

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 76.6

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	23,000		P	E
7440-36-0	Antimony	8.1 U		P	N
7440-38-2	Arsenic	[0.31]		BH	
7440-39-3	Barium	330		P	N,E
7440-41-7	Beryllium	0.18 U		P	
7440-43-9	Cadmium	7.9		P	N*
7440-70-2	Calcium	2800		P	
7440-47-3	Chromium	28		P	
7440-48-4	Cobalt	46		P	N*E
7440-50-8	Copper	190		P	*E
7439-89-6	Iron	34,000		P	E
7439-92-1	Lead	390		P	*E
7439-95-4	Magnesium	3100		P	E
7439-96-5	Manganese	2600		P	*E
7439-97-6	Mercury	0.034 U		CV	
7440-02-0	Nickel	280		P	N,E
7440-09-7	Potassium	2300		P	
7782-49-2	Selenium	0.37 U		BH	
7440-22-4	Silver	1.3 U		P	N
7440-23-5	Sodium	[110]		P	
7440-28-0	Thallium	0.90 U		F	
7440-62-2	Vanadium	63		P	
7440-66-6	Zinc	6100		P	*E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

FORM I3

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. IEPA Sample No.: S101

Matrix (soil/water): Soil Lab Sample ID: 200052-1

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 76.6

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.33 U			
	Phenol				
	Sulfate	1.30			N
	Sulfide	6.5 U			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S101

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-1

Sample wt/vol: 5 (g/mL) G Lab File ID: >V0041

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0.1 Date Analyzed: 8/04/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	14.	
67-64-1	Acetone	17.	
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	5.	U
106-42-3	o & p-Xylene	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 5101

Lab Name: ARDL Inc. Contract: Circle Smt

Lab Code: _____ Case No.: 200052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 200052-1

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0041

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 8/4/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	34.79	7.0	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S101

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >00222

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	56.	J
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	330.	U
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S101

L Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0222

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	330.	U
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	2500.	B
206-44-0	Fluoranthene	13.	J
129-00-0	Pyrene	30.	JB
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	330.	U
117-84-0	Di-n-Octyl_Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

TENTATIVELY

Lab Name: ARDL, Inc. Contract: S101

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-1

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0222

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec._____ dec._____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/3/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

Number TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) ~~ug/Kg~~

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	6.90	300.0	
2.		Unknown #2	7.30	2200.0	
3.		Unknown #3	7.87	16,000.0	
4.		Unknown #4	9.21	860.0	
5.		Unknown #5	10.11	150.0	
6.		Unknown #6	10.46	260.0	
7.		Unknown #7	10.80	280.0	
8.		Unknown #8	13.63	140.0	
9.		Unknown #9	18.68	190.0	
10.	3910358	2,3-dihydro-1,1,3-trimethyl-3-	20.29	90.0	
11.		Unknown #11	21.25	100.0	
12.		Unknown #12	21.45	710.0	
13.		Unknown #13	23.13	250.0	
14.		Unknown #14	24.90	110.0	
15.		Unknown #15	25.78	110.0	
16.		Unknown #16	26.78	160.0	
17.		Unknown Phthalate	27.66	330.0	
18.		Unknown Alkane	29.30	150.0	
19.		Unknown Alkane	32.88	160.0	
20.		Unknown #20	46.96	1100.0	
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
S101

ID

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200053-1
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/23/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Arochlor-1016	80	U
11104-28-2	Arochlor-1221	80	U
11141-16-5	Arochlor-1232	80	U
53469-21-9	Arochlor-1242	80	U
12672-29-6	Arochlor-1248	80	U
11097-69-1	Arochlor-1254	160	U
11096-82-5	Arochlor-1260	160	U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: S202

Matrix (soil/water): Soil Lab Sample ID: 200052-2

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 69.5

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	12,000		P	E
7440-36-0	Antimony	8.7 U		P	N
7440-38-2	Arsenic	20		BH	
7440-39-3	Barium	230		P	NE
7440-41-7	Beryllium	0.19 U		P	
7440-43-9	Cadmium	22		P	N *
7440-70-2	Calcium	38,000		P	
7440-47-3	Chromium	32		P	
7440-48-4	Cobalt	30		P	N * E
7440-50-8	Copper	3800		P	* E
7439-89-6	Iron	37,000		P	E
7439-92-1	Lead	9370		P	* E
7439-95-4	Magnesium	2500		P	E
7439-96-5	Manganese	1700		P	* E
7439-97-6	Mercury	0.69		CV	
7440-02-0	Nickel	1000		P	NE
7440-09-7	Potassium	[1650]		P	
7782-49-2	Selenium	0.39 U		BH	
7440-22-4	Silver	1.4 U		P	N
7440-23-5	Sodium	[500]		P	
7440-28-0	Thallium	1.1 U		F	
7440-62-2	Vanadium	35		P	
7440-66-6	Zinc	61,000		P	* E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. IEPA Sample No.: 5202
Matrix (soil/water): SOIL Lab Sample ID: 200052-2
Level (low/Med): _____ Date Received: 7/26/89
% Solids: 69.5

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.36 u			
	Phenol				
	Sulfate	1200			N
	Sulfide	7.2 u			

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S202RE

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-2RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0469

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	100.	B
67-64-1	Acetone	46.	B
75-15-0	Carbon Disulfide	2.	J
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene_(total)	5.	U
67-66-3	Chloroform	9.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	5.	JB
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	15.	B
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	2.	J
106-42-3	o & p-Xylene	2.	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: S202 RE

Lab Name: ARDL, INC Contract: CIRCLESAT

Lab Code: _____ Case No.: 200052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 200052-2RE

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0469

Level: (low/med) LOW Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 4 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	1.31	59	
2.		Unknown	13.99	10	
3.		Unknown	28.41	5.0	
4.		Unknown	34.42	35	
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S202

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-2

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0223

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	1600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	53.	J
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	87.	J
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S202

L Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-2

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0223

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	94.	J
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	2600.	B
206-44-0	Fluoranthene	50.	J
129-00-0	Pyrene	86.	JB
85-68-7	Butylbenzylphthalate	58.	J
91-94-1	3,3'-Dichlorobenzidine	670.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	330.	U
117-84-0	Di-n-Octyl Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

S202

Lab Name: ARDL, Inc. Contract: Circle Smt

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-2

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0223

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec._____ dec._____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/3/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

Number TICs found: 22

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	35	Methyl Benzene	6.33	220.0	
2.		Unknown #2	6.94	330.0	
3.		Unknown #3	7.30	1300.0	
4.		Unknown #4	7.63	440.0	
5.		Unknown #5	7.85	18000.0	
6.		Unknown #6	9.21	440.0	
7.		Unknown #7	10.09	200.0	
8.		Unknown #8	10.46	200.0	
9.		Unknown #9	18.51	140.0	
10.		Unknown #10	18.69	270.0	
11.		Unknown #11	20.01	150.0	
12.		Unknown Alkane	20.55	200.0	
13.		Unknown Alkane	20.67	1200	
14.		Unknown #14	21.26	1400	
15.		Unknown #15	21.43	900.0	
16.		Unknown #16	21.50	230.0	
17.		Unknown #17	23.27	140.0	
18.		Unknown #18	23.55	200.0	
19.		Unknown #19	24.09	140.0	
20.		Unknown #20	26.79	380.0	
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
5202

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200052-2
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/23/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6----	alpha-BHC	8.0	U
319-85-7----	beta-BHC	8.0	U
319-86-8----	delta-BHC	8.0	U
58-89-9-----	gamma-BHC (Lindane)	8.0	U
76-44-8-----	Heptachlor	8.0	U
309-00-2----	Aldrin	8.0	U
1024-57-3---	Heptachlor epoxide	8.0	U
959-98-8----	Endosulfan I	8.0	U
60-57-1-----	Dieldrin	16	U
72-55-9-----	4,4'-DDE	16	U
72-20-8-----	Endrin	16	U
33213-65-9--	Endosulfan II	16	U
72-54-8-----	4,4'-DDD	16	U
1031-07-8---	Endosulfan sulfate	16	U
50-29-3-----	4,4'-DDT	16	U
72-43-5-----	Methoxychlor	80	U
53494-70-5--	Endrin ketone	16	U
5103-71-9---	alpha-Chlordane	80	U
5103-74-2---	gamma-Chlordane	80	U
8001-35-2---	Toxaphene	160	U
12674-11-2--	Arochlor-1016	80	U
11104-28-2--	Arochlor-1221	80	U
11141-16-5--	Arochlor-1232	80	U
53469-21-9--	Arochlor-1242	80	U
12672-29-6--	Arochlor-1248	80	U
11097-69-1--	Arochlor-1254	160	U
11096-82-5--	Arochlor-1260	160	U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: S 301

Matrix (soil/water): Soil Lab Sample ID: 200052-3

Level (low/Med): _____ Date Received: 7/26/89

% Solids: 79.9

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	19 000		P	E
7440-36-0	Antimony	7.9 U		P	N
7440-38-2	Arsenic	[0.28]		BH	
7440-39-3	Barium	190		P	NE
7440-41-7	Beryllium	0.18 U		P	
7440-43-9	Cadmium	4.7		P	N*
7440-70-2	Calcium	2800		P	
7440-47-3	Chromium	24		P	
7440-48-4	Cobalt	22		P	N*E
7440-50-8	Copper	180		P	*E
7439-89-6	Iron	29,000		P	E
7439-92-1	Lead	550		P	*E
7439-95-4	Magnesium	2400		P	E
7439-96-5	Manganese	1900		P	*E
7439-97-6	Mercury	0.038 U		CV	
7440-02-0	Nickel	180		P	NE
7440-09-7	Potassium	1900		P	
7782-49-2	Selenium	0.35 U		BH	
7440-22-4	Silver	1.2 U		P	N
7440-23-5	Sodium	[110]		P	
7440-28-0	Thallium	1.0 U		F	
7440-62-2	Vanadium	72		P	
7440-66-6	Zinc	5809		P	*E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. IEPA Sample No.: S301

Matrix (soil/water): Soil Lab Sample ID: 200052-3

Level (low/Med): _____ Date Received: 7/26/18

% Solids: 79.9

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.31 u			
	Phenol				
	Sulfate	100			N
	Sulfide	6.3 u			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S301RE

Lab Name: AROL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-3RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0470

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	39.	B
67-64-1	Acetone	42.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene_(total)	5.	U
67-66-3	Chloroform	16.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	.7	JB
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	22.	B
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	2.	J
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	7.	
106-42-3	o & p-Xylene	8.	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: S301 RE

Lab Name: ARIX, INC. Contract: CIRCLESMT

Lab Code: _____ Case No.: 20005Z SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 20005Z-3RE

Sample wt/vol: 5 (g/mL) G Lab File ID: >V04170

Level: (low/med) LOW Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	1.33	76	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S301

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-3

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0224

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	1600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	330.	U
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S301

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-3

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0224

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	9.	J
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	2800.	B
206-44-0	Fluoranthene	330.	U
129-00-0	Pyrene	330.	U
85-68-7	Butylbenzylphthalate	48.	J
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	330.	U
117-84-0	Di-n-Octyl Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

S301

Lab Name: ARDL, Inc. Contract: Circle SMT

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) _____ Lab Sample ID: 200052-3

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0224

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/3/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) ~~ug/Kg~~ mg/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	6.91	140.0	
2.		Unknown #2	7.31	1400.0	
3.		3,5-dimethyl-heptane	7.63	390.0	
4.		Unknown #4	7.86	15,000.0	
5.		Unknown #5	9.21	570.0	
6.		Unknown #6	9.73	130.0	
7.		Unknown #7	10.10	140.0	
8.		Unknown #8	10.80	140.0	
9.		Unknown #9	13.63	110.0	
10.		Unknown #10	18.68	140.0	
11.	3910358	2-3 dihydro-1,1,3-trimethyl-1,3-phenyl-1H-Indene	20.29	90.0	
12.		Unknown #12	21.25	100.0	
13.		Unknown Phthalate	21.45	810.0	
14.		Unknown #14	26.79	160.0	
15.		Unknown #15	27.67	180.0	
16.		Unknown #16	29.31	180.0	
17.		Unknown #17	32.88	160.0	
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
5301

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200053-3
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/23/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6----	alpha-BHC	8.0	U
319-85-7----	beta-BHC	8.0	U
319-86-8----	delta-BHC	8.0	U
58-89-9-----	gamma-BHC (Lindane)	8.0	U
76-44-8-----	Heptachlor	8.0	U
309-00-2----	Aldrin	8.0	U
1024-57-3---	Heptachlor epoxide	8.0	U
959-98-8----	Endosulfan I	8.0	U
60-57-1-----	Dieldrin	16	U
72-55-9-----	4,4'-DDE	16	U
72-20-8-----	Endrin	16	U
33213-65-9--	Endosulfan II	16	U
72-54-8-----	4,4'-DDD	16	U
1031-07-8---	Endosulfan sulfate	16	U
50-29-3-----	4,4'-DDT	16	U
72-43-5-----	Methoxychlor	80	U
53494-70-5--	Endrin ketone	16	U
5103-71-9---	alpha-Chlordane	80	U
5103-74-2---	gamma-Chlordane	80	U
8001-35-2---	Toxaphene	160	U
12674-11-2--	Arochlor-1016	80	U
11104-28-2--	Arochlor-1221	80	U
11141-16-5--	Arochlor-1232	80	U
53469-21-9--	Arochlor-1242	80	U
12672-29-6--	Arochlor-1248	80	U
11097-69-1--	Arochlor-1254	160	U
11096-82-5--	Arochlor-1260	160	U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: S 302

Matrix (soil/water): Soil Lab Sample ID: 200052-4

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 64.3

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	11,000		P	E
7440-36-0	Antimony	11 U		P	N
7440-38-2	Arsenic	30		BH	
7440-39-3	Barium	140		P	NE
7440-41-7	Beryllium	0.24 U		P	
7440-43-9	Cadmium	12		P	N*
7440-70-2	Calcium	490 D		P	
7440-47-3	Chromium	37		P	
7440-48-4	Cobalt	22		P	N*E
7440-50-8	Copper	360 D		P	*E
7439-89-6	Iron	37,000		P	E
7439-92-1	Lead	610 D		P	*E
7439-95-4	Magnesium	1200		P	E
7439-96-5	Manganese	1100		P	*E
7439-97-6	Mercury	0.25		CV	
7440-02-0	Nickel	1400		P	NE
7440-09-7	Potassium	[510]		P	
7782-49-2	Selenium	1.6		BH	
7440-22-4	Silver	1.7 U		P	N
7440-23-5	Sodium	[310]		P	
7440-28-0	Thallium	1.2 U		F	
7440-62-2	Vanadium	30		P	
7440-66-6	Zinc	42,000		P	*E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: Clarity After: Artifacts:

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. IEPA Sample No.: S302

Matrix (soil/water): soil Lab Sample ID: 200052-4

Level (low/Med): _____ Date Received: 7/26/18

% Solids: 64.3

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.39 u			
	Phenol				
	Sulfate	310			N
	Sulfide	7.8			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S302RE

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-4RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0471

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	120.	B
67-64-1	Acetone	70.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene_(total)	5.	U
67-66-3	Chloroform	17.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	30.	B
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	11.	B
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	3.	JB
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	5.	U
106-42-3	o & p-Xylene	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: S302RE

Lab Name: ARDL, Inc Contract: Circle Smt

Lab Code: _____ Case No.: 200052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-4R

Sample wt/vol: 5 (g/mL) g Lab File ID: > V0471

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	1.21	43	
2.		Unknown	34.47	37	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S302

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-4

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0240

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/07/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	1600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	400.	
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	660.	
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S302

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-4

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0240

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/07/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	190.	J
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	570.	
120-12-7	Anthracene	44.	J
84-74-2	Di-n-butylphthalate	1300.	B
206-44-0	Fluoranthene	350.	
129-00-0	Pyrene	360.	B
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	150.	J
117-81-7	bis(2-Ethylhexyl)phthalate	330.	U
117-84-0	Di-n-Octyl_Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

S302

Lab Name: ARDL, Inc. Contract: CircleSMT

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-4

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0240

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec._____ dec._____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/3/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

Number TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	6.63	520.0	
2.		Unknown #2	6.67	490.0	
3.		Unknown #3	8.38	1700.0	
4.		Unknown #4	8.92	14000.0	
5.		Unknown #5	10.31	500.0	
6.		Unknown #6	16.89	400.0	
7.	74645980	2,7,10-trimethyl dodecane	18.17	400.0	
8.	569415	1,8-dimethyl naphthalene	18.26	340.0	
9.		Unknown Naphthalene	18.52	310.0	
10.		Unknown #10	18.60	410.0	
11.					
12.					
13.		Unknown #13	20.79	420.0	
14.		Unknown #14	21.79	880.0	
15.		Unknown #15	21.91	1100.0	
16.		Unknown #16	24.52	990.0	
17.		Unknown #17	26.39	860.0	
18.		Unknown Alkane	27.49	770.0	
19.		Unknown #19	28.75	1200.0	
20.		Unknown #20	31.98	790.0	
21.		Unknown #21	36.65	1200.0	
22.		Unknown #22	43.54	1300.0	
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
5302

ID

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200052-4
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/23/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Arochlor-1016	80	U
11104-28-2	Arochlor-1221	80	U
11141-16-5	Arochlor-1232	80	U
53469-21-9	Arochlor-1242	80	U
12672-29-6	Arochlor-1248	80	U
11097-69-1	Arochlor-1254	160	U
11096-82-5	Arochlor-1260	160	U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: X101

Matrix (soil/water): Soil Lab Sample ID: 200052-5

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 79.7

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	10,000		P	E
7440-36-0	Antimony	9.1 u		P	N
7440-38-2	Arsenic	[1.5]		BH	
7440-39-3	Barium	130		P	NE
7440-41-7	Beryllium	0.20 u		P	
7440-43-9	Cadmium	1.0 u		P	N*
7440-70-2	Calcium	2400		P	
7440-47-3	Chromium	13		P	
7440-48-4	Cobalt	[9.2]		P	N*E
7440-50-8	Copper	71		P	*E
7439-89-6	Iron	12,000		P	E
7439-92-1	Lead	200		P	*E
7439-95-4	Magnesium	1300		P	E
7439-96-5	Manganese	710		P	*E
7439-97-6	Mercury	0.038 u		CV	
7440-02-0	Nickel	35		P	NE
7440-09-7	Potassium	[1000]		P	
7782-49-2	Selenium	[0.50]		BH	
7440-22-4	Silver	5.0		P	N
7440-23-5	Sodium	110 u		P	
7440-28-0	Thallium	0.93 u		F	
7440-62-2	Vanadium	26		P	
7440-66-6	Zinc	640		P	*E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. IEPA Sample No.: X101

Matrix (soil/water): soil Lab Sample ID: 200052-5

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 79.7

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.31 u			
	Phenol				
	Sulfate	190			N
	Sulfide	6.3 u			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X101RE

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-5RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0472

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	69.	B
67-64-1	Acetone	180.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	26.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	160.	B
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	20.	
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	48.	
106-42-3	o & p-Xylene	57.	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NC: X101RE

Lab Name: ARDL, INC Contract: Circle Sm+

Lab Code: _____ Case No.: 200052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-5R

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0472

Level: (low/med) LOW Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 6 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	8.07	39	
2.		Unknown	10.82	9.0	
3.		Unknown	27.29	14	
4.		Unknown	27.52	13	
5.		Unknown	28.02	13	
6.		Unknown	34.42	160	
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X101

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0241

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/07/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	1600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	330.	U
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X101

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >00241

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/07/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	330.	U
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	970.	B
206-44-0	Fluoranthene	330.	U
129-00-0	Pyrene	330.	U
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	330.	U
117-84-0	Di-n-Octyl_Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

X101

Lab Name: ARDL, Inc Contract: Circle SMO

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-5

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0241

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec._____ dec._____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/7/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

Number TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	6.64	700.0	
2.		Unknown #2	6.78	430.0	
3.		Unknown #3	7.98	400.0	
4.		Unknown #4	8.37	1300.0	
5.		Unknown #5	8.92	14000.00	
6.		Unknown #6	10.31	800.0	
7.		Unknown #7	10.80	180.0	
8.		Unknown #8	11.53	360.0	
9.		Unknown #9	12.35	210.0	
10.		Unknown #10	14.19	1000.0	
11.		Unknown #11	14.82	760.0	
12.		Unknown #12	19.91	180.0	
13.		Unknown Phthalate	22.72	580.0	
14.		Unknown #14	24.35	370.0	
15.		Unknown #16	28.73	590.0	
16.		Unknown #18	31.96	270.0	
17.		Unknown #19	35.25	600.0	
18.		Unknown #20	36.63	540.0	
19.		Unknown #21	36.89	310.0	
20.		Unknown Alkane	43.49	720.0	
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
X101

ID

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200052-5
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/23/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	Q
319-84-6----	alpha-BHC	8.0 U
319-85-7----	beta-BHC	8.0 U
319-86-8----	delta-BHC	8.0 U
58-89-9-----	gamma-BHC (Lindane)	8.0 U
76-44-8-----	Heptachlor	8.0 U
309-00-2----	Aldrin	8.0 U
1024-57-3---	Heptachlor epoxide	8.0 U
959-98-8----	Endosulfan I	8.0 U
60-57-1-----	Dieldrin	16 U
72-55-9-----	4,4'-DDE	16 U
72-20-8-----	Endrin	16 U
33213-65-9--	Endosulfan II	16 U
72-54-8-----	4,4'-DDD	16 U
1031-07-8---	Endosulfan sulfate	16 U
50-29-3-----	4,4'-DDT	16 U
72-43-5-----	Methoxychlor	80 U
53494-70-5--	Endrin ketone	16 U
5103-71-9---	alpha-Chlordane	80 U
5103-74-2---	gamma-Chlordane	80 U
8001-35-2---	Toxaphene	160 U
12674-11-2--	Arochlor-1016	80 U
11104-28-2--	Arochlor-1221	80 U
11141-16-5--	Arochlor-1232	80 U
53469-21-9--	Arochlor-1242	80 U
12672-29-6--	Arochlor-1248	80 U
11097-69-1--	Arochlor-1254	160 U
11096-82-5--	Arochlor-1260	160 U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: X102

Matrix (soil/water): Soil Lab Sample ID: 200052-6

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 84.1

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	9700		P	E
7440-36-0	Antimony	8.4 u		P	N
7440-38-2	Arsenic	1.9		BH	
7440-39-3	Barium	140		P	NE
7440-41-7	Beryllium	0.19 u		P	
7440-43-9	Cadmium	0.97		P	N*
7440-70-2	Calcium	1900		P	
7440-47-3	Chromium	14		P	
7440-48-4	Cobalt	13		P	N*E
7440-50-8	Copper	160		P	*E
7439-89-6	Iron	13,000		P	E
7439-92-1	Lead	300		P	*E
7439-95-4	Magnesium	1200		P	E
7439-96-5	Manganese	1100		P	*E
7439-97-6	Mercury	0.044		CV	
7440-02-0	Nickel	74		P	NE
7440-09-7	Potassium	1100		P	
7782-49-2	Selenium	[0.587]		BH	
7440-22-4	Silver	4.6		P	N
7440-23-5	Sodium	100 u		P	
7440-28-0	Thallium	0.95 u		F	
7440-62-2	Vanadium	31		P	
7440-66-6	Zinc	3500		P	*E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. IEPA Sample No.: X102

Matrix (soil/water): Soil Lab Sample ID: 200052-6

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 84.1

Concentration Units (ug/L or mg/kg dry weight): ~~ug~~/Kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.44			
	Phenol				
	Sulfate	100			N
	Sulfide	5.9 U			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X102RE

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-6RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0473

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	49.	B
67-64-1	Acetone	140.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene_(total)	5.	U
67-66-3	Chloroform	17.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	19.	B
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	B
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	87.	B
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	10.	
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	21.	
106-42-3	o & p-Xylene	27.	

1E

EPA SAMPLE NO

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

X102RE

Lab Name: ARDL, INC Contract: Circle Smt.

Lab Code: _____ Case No.: 200052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-6R

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0473

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	C
1.		Unknown	34.39	48	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X102

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-6

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D0243

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/08/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	100.	J
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	330.	U
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

IC

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X102

L Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-6

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0243

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/08/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	330.	U
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	1500.	B
206-44-0	Fluoranthene	330.	U
129-00-0	Pyrene	330.	U
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	330.	U
117-84-0	Di-n-Octyl Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ARDL, Inc. Contract: Circle SMT | X102

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil | Lab Sample ID: 200052-6

Sample wt/vol: 30.0 (g/mL) g | Lab File ID: >D0243

Level: (low/med) Low | Date Received: 7/26/88

% Moisture: not dec._____ dec._____ | Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc | Date Analyzed: 9/7/88

GPC Cleanup: (Y/N) N pH:____ | Dilution Factor: 1.00

Number TICs found: 20 | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	6.74	860.0	
2.		Unknown #2	6.83	460.0	
3.		Unknown #3	8.05	760.0	
4.		Unknown #4	8.45	1100.0	
5.		Unknown #5	9.06	17000.0	
6.		Unknown #6	10.14	230.0	
7.		Unknown #7	10.37	590.0	
8.		Unknown #8	10.88	230.0	
9.		Unknown #9	14.88	630.0	
10.	544763	Hexadecane	19.79	130.0	
11.		Unknown #11	19.99	360.0	
12.	74764117	Iron, tricarbonyl [N-(phenyl-	20.85	130.0	
13.					
14.	3910358	1H Indene, 2,3-dihydro-1,1,3-	21.68	130.0	
15.		Unknown #15	22.79	2200.0	
16.		Unknown #16	22.87	170.0	
17.		Unknown #17	22.95	170.0	
18.		Unknown #18	23.87	170.0	
19.		Unknown #20	30.01	530.0	
20.		Unknown Alkane	32.11	360.0	
21.		Unknown #22	36.84	590.0	
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
X102

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) Soil
Lab Sample ID: 200052-6
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) Sonc
Date Analyzed: 08/24/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Arochlor-1016	80	U
11104-28-2	Arochlor-1221	80	U
11141-16-5	Arochlor-1232	80	U
53469-21-9	Arochlor-1242	80	U
12672-29-6	Arochlor-1248	80	U
11097-69-1	Arochlor-1254	160	U
11096-82-5	Arochlor-1260	160	U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: X103

Matrix (soil/water): Soil Lab Sample ID: 20052-7

Level (low/Med): _____ Date Received: 7/26/89

% Solids: 84.0

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	12,000		P	E
7440-36-0	Antimony	8.9 U		P	N
7440-38-2	Arsenic	31		BH	
7440-39-3	Barium	160		P	N E
7440-41-7	Beryllium	0.20 U		P	
7440-43-9	Cadmium	54		P	N *
7440-70-2	Calcium	3200		P	
7440-47-3	Chromium	71		P	
7440-48-4	Cobalt	26		P	N * E
7440-50-8	Copper	5800		P	* E
7439-89-6	Iron	34,000		P	E
7439-92-1	Lead	8300		P	* E
7439-95-4	Magnesium	2100		P	E
7439-96-5	Manganese	1300		P	* E
7439-97-6	Mercury	0.30		CV	
7440-02-0	Nickel	3200		P	N E
7440-09-7	Potassium	[650]		P	
7782-49-2	Selenium	1.5		BH	
7440-22-4	Silver	5.8		P	N
7440-23-5	Sodium	[300]		P	
7440-28-0	Thallium	0.94 U		F	
7440-62-2	Vanadium	25		P	
7440-66-6	Zinc	72,000		P	* E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. EPA Sample No.: X103

Matrix (soil/water): SOIL Lab Sample ID: 200052-7

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 84.0

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.30 U			
	Phenol				
	Sulfate	310			N
	Sulfide	6.0 U			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: Clarity After:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X103

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-7

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0017

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0 Date Analyzed: 8/03/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	50.	B
67-64-1	Acetone	52.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	8.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	5.	U
106-42-3	o & p-Xylene	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: X103

Lab Name: ARDL Inc. Contract: Circle Smt

Lab Code: _____ Case No.: 200052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-7

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0017

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 8/3/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

18

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X103

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-7

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0244

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/08/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	50.	J
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	280.	J
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X103

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-7

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0244

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/08/88

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	90.	J
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	220.	J
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	1100.	B
206-44-0	Fluoranthene	330.	U
129-00-0	Pyrene	110.	JB
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	230.	J
117-84-0	Di-n-Octyl_Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: X103

Lab Name: ARDL, Inc. Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-7

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0244

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/8/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

Number TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	6.82	700	
2.		Unknown #2	8.05	600	
3.		Unknown #3	8.43	630	
4.		Unknown #4	8.55	1400	
5.		Unknown #5	8.86	4900	
6.		Unknown #6	10.39	380	
7.		Unknown #7	11.27	260	
8.	91576	2-methyl-naphthalene	16.96	20C	
9.		UNKNOWN NAPHTHALENE	18.12	170	
10.		UNKNOWN ALKANE	18.23	300	
11.		UNKNOWN NAPHTHALENE	18.32	220	
12.		UNKNOWN NAPHTHALENE	18.58	160	
13.		UNKNOWN ALKANE	18.66	290	
14.		UNKNOWN ALKANE	19.78	280	
15.		UNKNOWN #15	20.32	290	
16.		UNKNOWN #16	20.85	460	
17.		UNKNOWN #17	20.90	140	
18.		UNKNOWN #18	21.68	170	
19.		UNKNOWN #19	21.98	360	
20.		UNKNOWN #20	24.59	230	
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
X103

ID

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200052-7
Sample wt/vol: 30.0 (g/mL) *G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/24/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6----	alpha-BHC	8.0	U
319-85-7----	beta-BHC	8.0	U
319-86-8----	delta-BHC	8.0	U
58-89-9-----	gamma-BHC (Lindane)	8.0	U
76-44-8-----	Heptachlor	8.0	U
309-00-2----	Aldrin	8.0	U
1024-57-3---	Heptachlor epoxide	8.0	U
959-98-8----	Endosulfan I	8.0	U
60-57-1-----	Dieldrin	16	U
72-55-9-----	4,4'-DDE	16	U
72-20-8-----	Endrin	16	U
33213-65-9--	Endosulfan II	16	U
72-54-8-----	4,4'-DDD	16	U
1031-07-8---	Endosulfan sulfate	16	U
50-29-3-----	4,4'-DDT	16	U
72-43-5-----	Methoxychlor	80	U
53494-70-5--	Endrin ketone	16	U
5103-71-9---	alpha-Chlordane	80	U
5103-74-2---	gamma-Chlordane	80	U
8001-35-2---	Toxaphene	160	U
12674-11-2--	Arochlor-1016	80	U
11104-28-2--	Arochlor-1221	80	U
11141-16-5--	Arochlor-1232	80	U
53469-21-9--	Arochlor-1242	80	U
12672-29-6--	Arochlor-1248	80	U
11097-69-1--	Arochlor-1254	160	U
11096-82-5--	Arochlor-1260	160	U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: X104

Matrix (soil/water): Soil Lab Sample ID: 200052-8

Level (low/Med): _____ Date Received: 7/26/89

% Solids: 85.7

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	10,000		P	E
7440-36-0	Antimony	9.0 u		P	N
7440-38-2	Arsenic	9.6		BH	
7440-39-3	Barium	170		P	NE
7440-41-7	Beryllium	0.20 u		P	
7440-43-9	Cadmium	1.9		P	N*
7440-70-2	Calcium	4400		P	
7440-47-3	Chromium	24		P	
7440-48-4	Cobalt	12		P	N*E
7440-50-8	Copper	880		P	*E
7439-89-6	Iron	17,000		P	E
7439-92-1	Lead	1600		P	*E
7439-95-4	Magnesium	1200		P	E
7439-96-5	Manganese	920		P	*E
7439-97-6	Mercury	0.13		CV	
7440-02-0	Nickel	450		P	NE
7440-09-7	Potassium	[980]		P	
7782-49-2	Selenium	1.5		BH	
7440-22-4	Silver	1.4 u		P	N
7440-23-5	Sodium	[260]		P	
7440-28-0	Thallium	0.85 u		F	
7440-62-2	Vanadium	30		P	
7440-66-6	Zinc	11,000		P	*E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. IEPA Sample No.: X104

Matrix (soil/water): SOIL Lab Sample ID: 200052-8

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 85.7

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.29 u			
	Phenol				
	Sulfate	2600			N
	Sulfide	5.8 u			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X104RE

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-8RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0476

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	120.	B
67-64-1	Acetone	140.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene_(total)	5.	U
67-66-3	Chloroform	19.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	180.	B
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	16.	
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	36.	
106-42-3	o & p-Xylene	39.	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO: X104RE

Lab Name: ARDL, INC Contract: Circle Smt.

Lab Code: _____ Case No.: 20052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 20052-8

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0476

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 9/22/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	24.26	8.0	
2.		Unknown	27.24	8.0	
3.		Unknown	28.87	11	
4.		Unknown	34.49	220	
5.		Unknown	35.71	5.0	
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X104RE

Lab Name: AROL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-8RE

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0470

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/28/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	80.	J
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	30.	J
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	60.	J
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X104RE

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-8RE

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0470

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/28/88

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	100.	J
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	850.	B
206-44-0	Fluoranthene	330.	U
129-00-0	Pyrene	330.	U
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	330.	U
117-84-0	Di-n-Octyl Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

X104RE

Lab Name: ARDL, Inc. Contract: Circle SMT

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-8RE

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0470

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec._____ dec._____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/28/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

Number TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) ~~ug/Kg~~

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	7.79	340.0	
2.		Unknown #2	7.89	3600.0	
3.	440	2-Fluorophenol	8.73	2100.0	
4.		Unknown #4	9.55	660.0	
5.		Unknown #5	10.33	260.0	
6.		Unknown #6	14.62	170.0	
7.		Unknown - Naphthalene	17.46	170.0	
8.		Unknown Alkane	17.60	130.0	
9.		Unknown #9	18.24	170.0	
10.		Unknown #10	18.71	170.0	
11.	3910358	1H-Indene, 2,3-dihydro-1,3-	20.50	130.0	
12.		Unknown #12	20.75	200.0	
13.		Unknown Phthalate	21.65	870.0	
14.		Unknown Alkane	23.45	170.0	
15.		Unknown #16	25.91	230.0	
16.		Unknown #17	27.02	500.0	
17.		Unknown #18	29.61	830.0	
18.		Unknown #20	33.37	2400.0	
19.		Unknown #21	38.59	1300.0	
20.		Unknown #22	46.49	430.0	
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
X104

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200052-8
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/24/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	-	Q
319-84-6----	alpha-BHC	8.0	U
319-85-7----	beta-BHC	8.0	U
319-86-8----	delta-BHC	8.0	U
58-89-9-----	gamma-BHC (Lindane)	8.0	U
76-44-8-----	Heptachlor	8.0	U
309-00-2----	Aldrin	8.0	U
1024-57-3---	Heptachlor epoxide	8.0	U
959-98-8----	Endosulfan I	8.0	U
60-57-1-----	Dieldrin	16	U
72-55-9-----	4,4'-DDE	16	U
72-20-8-----	Endrin	16	U
33213-65-9--	Endosulfan II	16	U
72-54-8-----	4,4'-DDD	16	U
1031-07-8---	Endosulfan sulfate	16	U
50-29-3-----	4,4'-DDT	16	U
72-43-5-----	Methoxychlor	80	U
53494-70-5--	Endrin Ketone	16	U
5103-71-9---	alpha-Chlordane	80	U
5103-74-2---	gamma-Chlordane	80	U
8001-35-2---	Toxaphene	160	U
12674-11-2--	Arochlor-1016	80	U
11104-28-2--	Arochlor-1221	80	U
11141-16-5--	Arochlor-1232	80	U
53469-21-9--	Arochlor-1242	80	U
12672-29-6--	Arochlor-1248	80	U
11097-69-1--	Arochlor-1254	160	U
11096-82-5--	Arochlor-1260	160	U

FORM IA

INORGANIC ANALYSIS DATA SHEET
METALS

Lab Name: ARDL, Inc. IEPA Sample No.: X105

Matrix (soil/water): Soil Lab Sample ID: 200052-9

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 82.7

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	9500		P	E
7440-36-0	Antimony	8.0 U		P	N
7440-38-2	Arsenic	2.2		BH	
7440-39-3	Barium	190		P	NE
7440-41-7	Beryllium	0.18 U		P	
7440-43-9	Cadmium	4.9		P	N*
7440-70-2	Calcium	4200		P	
7440-47-3	Chromium	22		P	
7440-48-4	Cobalt	14		P	N*E
7440-50-8	Copper	490		P	*E
7439-89-6	Iron	22,000		P	E
7439-92-1	Lead	940		P	*E
7439-95-4	Magnesium	1400		P	E
7439-96-5	Manganese	1000		P	*E
7439-97-6	Mercury	0.16		CV	
7440-02-0	Nickel	310		P	NE
7440-09-7	Potassium	1000		P	
7782-49-2	Selenium	[0.75]		BH	
7440-22-4	Silver	[1.8]		P	N
7440-23-5	Sodium	[250]		P	
7440-28-0	Thallium	1.0 U		F	
7440-62-2	Vanadium	27		P	
7440-66-6	Zinc	8400		P	*E

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

FORM IB

INORGANIC ANALYSIS DATA SHEET
OTHER INORGANICS

Lab Name: ARDL, Inc. EPA Sample No.: X105

Matrix (soil/water): SOIL Lab Sample ID: 200052-9

Level (low/Med): _____ Date Received: 7/26/88

% Solids: 82.7

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
	Cyanide	0.67			
	Phenol				
	Sulfate	180			N
	Sulfide	6.1 U			

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: Clarity After:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X105

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-9

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0019

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec. 0.1 Date Analyzed: 8/03/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	87.	B
67-64-1	Acetone	110.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene_(total)	5.	U
67-66-3	Chloroform	21.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	5.	U
106-42-3	o & p-Xylene	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: X105

Lab Name: ARDL Inc Contract: Circle Smt

Lab Code: _____ Case No.: 20052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 20052-9

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0019

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec. 0.1 Date Analyzed: 8/3/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X105

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-9

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0246

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/08/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	80.	J
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	60.	J
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

X105

Lab Name: AROL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-9

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0246

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/08/88

GPC Cleanup: (Y/N) N pH: --- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	100.	J
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	850.	B
206-44-0	Fluoranthene	330.	U
129-00-0	Pyrene	330.	U
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	330.	JB
117-84-0	Di-n-Octyl_Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. X105

Lab Name: ARDL, Inc Contract: Circle SMT

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-9

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D0246

Level: (low/med) Low Date Received: 7/26/88

% Moisture: not dec._____ dec._____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/8/88

GPC Cleanup: (Y/N) N pH:___ Dilution Factor: 1.00

Number TICs found: 19 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown #1	6.94	330.	
2.		Unknown #2	8.05	170.	
3.		Unknown #3	8.46	1390.	
4.		Unknown #4	9.17	26000.	
5.		Unknown #5	10.38	690.	
6.		Unknown #6	10.88	330.	
7.		Unknown #7	11.17	170.	
8.		Unknown #8	11.60	230.	
9.		Unknown #9	11.98	170.	
10.		Unknown #10	14.87	260.	
11.		Unknown #12	18.14	700.	
12.		Unknown #14	19.99	500.	
13.		Unknown #15	20.85	130.	
14.		Unknown #16	21.43	100.	
15.		1H-Indene, 2,3-dihydro-1,1,3-	21.69	1200.	
16.		Unknown #18	21.86	130.	
17.		Unknown #19	21.98	130.	
18.		Unknown #20	22.39	100.	
19.		Unknown Phthalate ester	22.80	1100.	
20.		UNKNOWN #22	23.79	140.	
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

EPA SAMPLE NO.
X105

ID

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 200052-9
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/24/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Arochlor-1016	80	U
11104-28-2	Arochlor-1221	80	U
11141-16-5	Arochlor-1232	80	U
53469-21-9	Arochlor-1242	80	U
12672-29-6	Arochlor-1248	80	U
11097-69-1	Arochlor-1254	160	U
11096-82-5	Arochlor-1260	160	U

ORGANIC SAMPLE DATA SUMMARY PACKAGE
FACILITY NAME: Circle Smelting Corp.
SITE INVENTORY #: 0270200002
LABORATORY ID #: 200052

VOLUME 2

ARDL, Inc.

CHEMISTRY — BIOLOGY — PHYSIOLOGY — ENGINEERING
ENVIRONMENTAL ANALYSIS

P. O. BOX 1566
1861 FOREST STREET
MT. VERNON, ILLINOIS 62864
TELEPHONE (618) 244-3236

FORM O

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICES
ORGANIC ANALYSIS DATA PACKAGE

Date 9/30/88

Cover Page

Lab Name ARDL, Inc. Q.C. Report No. 200052

Site Inventory No. 0270200002 Facility Name Circle Smelting Corp

Region Southern County Clinton

CONTENTS SUMMARY - use additional page if necessary

IEPA I.D.No.	Lab I.D. No.	VOA Anal Date	SEMI-VOL. Extr Date	SEMI-VOL. Anal Date	Pesticide/PCB Extr Date	Pesticide/PCB Anal Date
S101	200052-1	8/4/88	8/2/88	9/3/88	8/2/88	8/23/88
S202	200052-2	8/2/88	8/2/88	9/3/88	8/2/88	8/23/88
S202RE	200052-2RE	9/22/88				
S301	200052-3	8/2/88	8/2/88	9/3/88	8/2/88	8/23/88
S301RE	200052-3RE	9/22/88				
S301MS	200052-3MS	8/2/88	8/2/88	9/4/88	8/2/88	8/23/88
S301MSD	200052-3MSD	8/2/88	8/2/88	9/7/88	8/2/88	8/24/88
S302	200052-4	8/3/88	8/2/88	9/7/88	8/2/88	8/23/88
S302RE	200052-4RE	9/22/88				
X101	200052-5	8/3/88	8/2/88	9/7/88	8/2/88	8/23/88
X101RE	200052-5RE	9/22/88				
X102	200052-6	8/3/88	8/2/88	9/8/88	8/2/88	8/24/88
X102RE	200052-6RE	9/22/88				
X103	200052-7	8/3/88	8/2/88	9/8/88	8/2/88	8/24/88
X104	200052-8	8/3/88	8/2/88	9/8/88	8/2/88	8/24/88
X104RE	200052-8RE	9/22/88	8/2/88	9/28/88		
X105	200052-9	8/3/88	8/2/88	9/8/88	8/2/88	8/24/88
	BLK 8/02/88	8/3/88				

RECEIVED
OCT 7 1988

20000

FORM O

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICES
ORGANIC ANALYSIS DATA PACKAGE

Date 9/30/98

Cover Page

Lab Name ARDL, Inc. Q.C. Report No. 200052

Site Inventory No. 0270200002 Facility Name Circle Smelting Corp

Region Southern County Clinton

CONTENTS SUMMARY - use additional page if necessary

IEPA I.D.No.	Lab I.D. No.	VOA Anal Date	SEMI-VOL. Extr Date	SEMI-VOL. Anal Date	Pesticide/PCB Extr Date	Pesticide/PCB Anal Date
	BLK 8/04/98	8/4/98				
	BLK 9/22/98	9/22/98				
	200052-O-S		8/2/98	9/3/98		
	200052-O				8/2/98	8/23/98

ORGANIC ANALYSES CASE NARRATIVE

Date: 9/30/99

COVER PAGE

Lab Name: ARDL, Inc.
1601 Forest St.
Mt. Vernon, IL 62864

Site Location: Circle Smelting Corp Site Inventory No.: 0270200002

Region: Southern County: Clinton

SAMPLE SUMMARY

IEPA NUMBER	ARDL NUMBER	LEVEL		FRACTION				MS/MSD	RPT	DIL.	COMMENTS
		LOW	MED	VOA	BNA	PEST	PCB				
S101	200052-1	X		X	X	X	X				
S202	200052-2	X		X	X	X	X				(3)
S202RE	200052-2RE	X		X					X		(1)-VOA
S301	200052-3	X		X	X	X	X				(2)-VOA
S301RE	200052-3RE	X		X					X		(1)-VOA
S301MS	200052-3MS	X		X	X	X	X	X			(2)-VOA
S301MSD	200052-3MSD	X		X	X	X	X	X			(2)-VOA
S302	200052-4	X		X	X	X	X				(3)-VOA
S302RE	200052-4RE	X		X					X		(1)-VOA
X101	200052-5	X		X	X	X	X				(2)-VOA
X101RE	200052-5RE	X		X					X		(1)-VOA
X102	200052-6	X		X	X	X	X				(2)-VOA
X102RE	200052-6RE	X		X					X		(1)-VOA
X103	200052-7	X		X	X	X	X				
X104	200052-8	X		X	X	X	X				(2)-VOA & BNA
X104RE	200052-8RE	X		X	X				X		(1)-VOA & BNA
X105	200052-9	X		X	X	X	X				
	BLK 8/02/88	X		X							Method Blank
	BLK 8/04/88	X		X							" "
	BLK 9/22/88	X		X							" "

COMMENTS (1) PASS surrogate recovery criteria
(2) Fail surrogate recovery criteria
(3) Soil heat purge malfunction - No data

20002

ORGANIC ANALYSES CASE NARRATIVE

Date: 9/30/88

COVER PAGE

Lab Name: ARDL, Inc.
1801 Forest St.
Mt. Vernon, IL 62864

Site Location: Circle Smelting Corp Site Inventory No.: 0270200002

Region: Southern County: Clinton

SAMPLE SUMMARY

IEPA NUMBER	ARDL NUMBER	LEVEL		FRACTION				MS/ MSD	RPT	DIL.	COMMENTS
		LOW	MED	VOA	BNA	PEST	PCB				
	200052-0-S	X			X						Method Blank
	200052-0	X				X	X				" "

COMMENTS

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
ORGANIC ANALYSES DATA PACKAGE

Date: 09/30/88

COVER PAGE

Lab Name: ARDL, Inc. Q.C. Report Number: 200052

Site Location: Circle Smelting Corp.

Region: Southern County: Clinton

Case Narrative

VOLATILE ORGANIC FRACTION

All samples were initially analyzed within the ten (10) day requirement. Upon subsequent review of the data files, it was discovered that an apparent soil head purge malfunction occurred on IEPA Samples S202 and S302 and no data were present. A second analysis was performed on these samples on 9/22/88 with acceptable surrogate recovery criteria being obtained.

Initial calibration was required on 8/2/88 and 9/22/88. Once an acceptable calibration was obtained, ARDL immediately retuned the GC/MS to gain a 12-hour tuning period which was approved by Ron Turpin, IEPA. No other unusual problems occurred during VOA analysis.

SEMIVOLATILE ORGANIC FRACTION

No unusual problems occurred during BNA analysis.

PESTICIDE/PCB FRACTION

Surrogate recovery for samples in this lot were within the advisory limits with the exception of two samples, 200052-4 and 200052-7. Recovery in these two samples was high. Recovery of spiked compounds was low overall, with five compounds recovered below the advisory recovery limits. Two RPD's were slightly above the advisory limits as well.

Five samples analyzed in this lot required confirmational analysis; however, no target compounds were confirmed in any samples.

Samples 200052-4 and 200052-7 exhibited a large peak on confirmation for heptachlor epoxide. The concentrations of this compound in the confirmational analysis does not reasonably compare with those shown in the primary analysis. Additionally, both Aldrin and Heptachlor exhibited the same inconsistencies in concentration from the primary analysis to the confirmational analysis. Based on these significant discrepancies in concentrations, it is the opinion of the analyst that these compounds are unconfirmed, and have been reported as such.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
ORGANIC ANALYSES DATA PACKAGE

Date: 09/30/88

COVER PAGE (continued)

Lab Name: ARDL, Inc. Q.C. Report Number: 200052

Site Location: Circle Smelting Corp.

Region: Southern County: Clinton

Case Narrative (continued)

ORGANIC DATA REPORTING QUALIFIERS

The following organic data reporting qualifiers are used as required.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. This flag is used either when estimating a concentration for TICs where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the CRDL.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides greater than or equal to 10 ng/ul in the final extract shall be confirmed by GC/MS.

- This flag is used when the analyte is found in the blank as well as the sample. This flag must be used for a TIC as well as for a positively identified TCL compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form 1 for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms 1. The Form 1 for the diluted sample shall have the "DL" suffix appended to the lab sample number and the EPA sample number.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
ORGANIC ANALYSES DATA PACKAGE

Date: 09/30/88

COVER PAGE (continued)

Lab Name: ARDL, Inc. Q.C. Report Number: 200052

Site Location: Circle Smelting Corp.

Region: Southern County: Clinton

Case Narrative (continued)

ORGANIC DATA REPORTING QUALIFIERS (continued)

- This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample numbers (both lab and EPA) on the Form 1 for the diluted sample, and all concentration values reported on that Form 1 are flagged with the "D" flag.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

2B

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: ARDL INC. Contract: Circle Smt

Lab Code: _____ Case No.: 20052 SAS No.: _____ SDG No.: _____

Level: (low/med) Low

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	BLK 8/02/88	100	105	77		0
02	BLK 8/04/88	106	104	76		0
03	BLK 9/22/88	98	98	76		0
04	S101	107	109	72		0
05	S202	0 *	0 *	0 *		3
06	S301	108	99	23 *		1
07	S302	0 *	0 *	0 *		3
08	Y101	108	91	59 *		1
09	X102	102	98	128 *		1
10	Y103	112	90	75		0
11	Y104	114	96	34 *		1
12	Y105	107	91	78		0
13	S202 RE	109	86	71		0
14	S301 RE	104	94	79		0
15	S302 RE	97	97	77		0
16	Y101 RE	101	100	94		0
17	X102RE	103	98	92		0
18	Y104RE	110	95	94		0
19	S301 MS	102	97	1.4 *		1
20	S301MSD	104	96	1.1 *		1
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

SOIL SEMIVOLATILE SURROGATE RECOVERY

Name: ROOT, INC Contract: CIRCLE ENT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
01	SOIL BLANK	76	85	106	67	75	70		0
02	S101	65	74	87	62	69	74		0
03	S202	79	86	97	69	78	81		0
04	S301	67	82	90	64	69	66		0
05	S301MS	70	82	89	66	77	73		0
06	S301MSD	47	53	58	64	59	45		0
07	S302	46	48	47	64	56	48		0
08	X101	41	43	48	60	54	41		0
09	X102	18 *	49	88	39	32	21		1
10	X103	41	65	73	42	53	85		0
11	X104	66	91	94	52	7 *	98		1
12	X105	75	92	162 *	65	65	91		1
13	X104RE	97	98	108	72	11 *	94		1
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

	QC LIMITS
S1 (NBZ) = Nitrobenzene-d5	(23-120)
S2 (FBP) = 2-Fluorobiphenyl	(30-115)
S3 (TPH) = Terphenyl-d14	(18-137)
S4 (PHL) = Phenol-d5	(24-113)
S5 (2FP) = 2-Fluorophenol	(25-121)
S6 (TBP) = 2,4,6-Tribromophenol	(19-122)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

20008

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ARDL Contract: Circle Smt

Level: (low/med) Low

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	S101	34	
02	S202	42	
03	S301	50	
04	S301ms	26	
05	S301msd	33	
06	S302	182	*
07	X101	40	
08	X102	48	
09	X103	188	*
10	X104	116	
11	X105	117	
12	PBLKS	37	
13			
14			
15			
16			
17			
18			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

ADVISORY QC LIMITS (20-150)

S1 (DBC) = Dibutylchlorendate

Column used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

FORM II PEST-2

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

I-b Name: ARDL INC Contract: Circle Snt

Lab Code: _____ Case No.: 20002 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: S301 Level: (low/med) Low

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	0.00	32.80	66	59-172
Trichloroethene	50.00	0.00	42.20	84	62-137
Benzene	50.00	0.00	41.10	82	66-142
Toluene	50.00	22.40	43.20	42*	59-139
Chlorobenzene	50.00	0.00	39.20	78	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	33.50	67	2	22	59-172
Trichloroethene	50.00	41.20	82	2	24	62-137
Benzene	50.00	41.60	83	1	21	66-142
Toluene	50.00	43.60	42*	0	21	59-139
Chlorobenzene	50.00	34.50	79	1	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 2 out of 10 outside limits

COMMENTS: _____

20010

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix Spike - EPA Sample No.: S301 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	3340.00	0.00	2600.00	78	26- 90
2-Chlorophenol	3340.00	0.00	2400.00	72	25-102
1,4-Dichlorobenzene	1670.00	0.00	1400.00	84	28-104
N-Nitroso-di-n-prop.(1)	1670.00	0.00	1300.00	79	41-126
1,2,4-Trichlorobenzene	1670.00	0.00	1300.00	78	38-107
4-Chloro-3-methylphenol	3340.00	0.00	2600.00	78	26-103
Acenaphthene	1670.00	0.00	1600.00	96	31-137
4-Nitrophenol	3340.00	0.00	2600.00	79	11-114
2,4-Dinitrotoluene	1670.00	0.00	0.00	0 *	28- 89
Pentachlorophenol	3340.00	0.00	1700.00	51	17-109
Pyrene	1670.00	0.00	1700.00	102	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	3340.00	1900.00	57	31	35	26- 90
2-Chlorophenol	3340.00	1700.00	51	34	50	25-102
1,4-Dichlorobenzene	1670.00	970.00	58	37 *	27	28-104
N-Nitroso-di-n-prop.(1)	1670.00	1000.00	60	27	38	41-126
1,2,4-Trichlorobenzene	1670.00	920.00	55	35 *	23	38-107
4-Chloro-3-methylphenol	3340.00	1800.00	54	36 *	33	26-103
Acenaphthene	1670.00	1500.00	90	6	19	31-137
4-Nitrophenol	3340.00	1700.00	51	43	50	11-114
2,4-Dinitrotoluene	1670.00	800.00	48	200 *	47	28- 89
Pentachlorophenol	3340.00	1400.00	42	19	47	17-109
Pyrene	1670.00	1200.00	72	34	36	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
Values outside of qc limits

RPD: 4 out of 11 outside limits
Spike Recovery: 1 out of 22 outside limits

COMMENTS: _____

20011

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ARDL, Inc Contract: Circle Smt.

Matrix Spike - EPA Sample No.: S301 Level: (low/med): Low

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS % REC #	QC LIMITS REC.
Lindane	27	-	3.3	12 *	46-127
Heptachlor	27	-	19	70	35-130
Aldrin	27	-	22	81	34-132
Dieldrin	67	-	10	15 *	31-134
Endrin	67	-	22	33 *	42-139
4,4'DDT	67	-	39	58	23-134

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Lindane	27	5.4	20 *	50 *	50	46-127
Heptachlor	27	20	73	5.1	31	35-130
Aldrin	27	23	86	4.4	43	34-132
Dieldrin	67	18	24 *	57 *	38	31-134
Endrin	67	40	49	58 *	45	42-139
4,4'DDT	67	55	83	34	50	23-134

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 2 out of 6 outside limits

Spike Recovery: 5 out of 12 outside limits

COMMENTS: Lindane detected in both MS/MSD samples; however concentration was less than CRDL

FORM III PEST-2

20012

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: ARDL, INC Contract: Circle Smt

Job Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Lab File ID: >W8823 Lab Sample ID: BLK 8/2/88

Date Analyzed: 8/03/88 Time Analyzed: 5:33

Matrix: (soil/water) SOIL Level: (low/med) LOW

Instrument ID: HP- 2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	S202	200052-2	>V0010	20:54
02	S301	200052-3	>V0011	21:40
03	S301MS	200052-3MS	>V0012	22:29
04	S301MSD	200052-3MSD	>V0013	23:16
05	S302	200052-4	>V0014	0:02
06	X101	200052-5	>V0015	0:50
07	X102	200052-6	>V0016	1:37
08	X103	200052-7	>V0017	2:23
09	X104	200052-8	>V0018	3:11
10	X105	200052-9	>V0019	3:59
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				

30zz

COMMENTS:

20013

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLANK

Lab Name: AROL, INC Contract: Circle Smt

Lab Code: ----- Case No.: 20005Q SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: BLK 8/02/88

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >WB823

Level: (low/med) LOW Date Received: NA

% Moisture: not dec. 0.1 Date Analyzed: 8/03/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	24.	B
67-64-1	Acetone	32.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	14.	B
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	5.	U
106-42-3	o & p-Xylene	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: Blank

Lab Name: ARDL, INC Contract: Circle Smt.

Lab Code: _____ Case No.: 200052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: Blk 8/02/88

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >W8823

Level: (low/med) Low Date Received: NA

% Moisture: not dec. 0.1 Date Analyzed: 8/03/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	24.28	10	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: ARDL INC Contract: Circle Smt

Lab Code: _____ Case No.: 20052 SAS No.: _____ SDG No.: _____

Lab File ID: > V0041 Lab Sample ID: BLK 8/4/88

Date Analyzed: 8/4/88 Time Analyzed: 19:42

Matrix: (soil/water) SOIL Level: (low/med) LOW

Instrument ID: HP-2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	S101	20052-1	> V0041	12:01
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLANK

Lab Name: AROL, INC Contract: Circle Smt

Lab Code: ----- Case No.: 20052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: BLK 8/4/88

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0040

Level: (low/med) LOW Date Received: NA

% Moisture: not dec.--- Date Analyzed: 8/04/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	5.	U
106-42-3	o & p-Xylene	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BLANK

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: _____ Case No.: 20005Z SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: BLK FOR 8/4/88

Sample wt/vol: 5 (g/mL) g Lab File ID: >V0040

Level: (low/med) LOW Date Received: NA

% Moisture: not dec. — Date Analyzed: 8/4/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/Kg) Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.68	12	
2.		UNKNOWN	7.72	14	
3.		UNKNOWN	27.84	6	
4.		UNKNOWN	28.07	6	
5.		UNKNOWN	29.97	6	
6.		UNKNOWN	31.37	9	
7.		UNKNOWN	31.64	8	
8.		UNKNOWN	31.87	7	
9.		UNKNOWN	34.10	6	
10.		UNKNOWN	39.05	7	
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: ARDL, INC Contract: Circle Smt

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Lab File ID: >V0468 Lab Sample ID: BLK 9/22/88

Date Analyzed: 9/22/88 Time Analyzed: 14:05

Matrix: (soil/water) SOIL Level: (low/med) LOW

Instrument ID: HP- 2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	S202RE	200052-2RE	>V0469	14:51
02	S301RE	200052-3RE	>V0470	15:37
03	S302RE	200052-4RE	>V0471	16:24
04	X101RE	200052-5RE	>V0472	17:10
05	X102RE	200052-6RE	>V0473	17:57
06	X104RE	200052-8RE	>V0476	20:16
07	X103RE	200055-4RE	>V0477	22:02
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30	zz			

COMMENTS: _____

20019

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLANK

Lab Name: ARDL, INC Contract: Circle Sat.

Lab Code: ----- Case No.: 20052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: BLK 9/22/88

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >V0468

Level: (low/med) LOW Date Received: NA

% Moisture: not dec.--- Date Analyzed: 9/22/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	19.	B
67-64-1	Acetone	49.	B
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	JB
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	34.	B
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	JB
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	3.	JB
591-78-6	2-Hexanone	5.	JB
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	1.	JB
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
108-38-3	m-Xylene	5.	U
106-42-3	o & p-Xylene	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: Blank

Lab Name: ARDL, INC Contract: Circle Smt

Lab Code: _____ Case No.: 20052 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: BLK 9/22/88

Sample wt/vol: 5.0 (g/mL) g Lab File ID: > V0468

Level: (low/med) Low Date Received: NA

% Moisture: not dec. — Date Analyzed: 9/22/88

Column: (pack/cap) Pack Dilution Factor: 1.0

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	9.52	10	
2.		Unknown	20.21	59	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

4C

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Lab File ID: D0221 Lab Sample ID: 200052-0-S

Date Extracted: 08/02/88 Extraction: (SepF/Cont/Sonc) -----

Date Analyzed: 9/03/88 Time Analyzed: 20:24

Matrix: (soil/water) SOIL Level: (low/med) LOW

Instrument ID: HP-. 1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	S101	200052-1	>D0222	9/03/88
02	S202	200052-2	>D0223	9/03/88
03	S301	200052-3	>D0224	9/03/88
04	S301MS	200052-3MS	>D0225	9/04/88
05	S301MSD	200052-3MSD	>D0239	9/07/88
06	S302	200052-4	>D0240	9/07/88
07	X101	200052-5	>D0241	9/07/88
08	X102	200052-6	>D0243	9/08/88
09	X103	200052-7	>D0244	9/08/88
10	X104	200052-8	>D0245	9/08/88
11	X105	200052-9	>D0246	9/08/88
12	X104RE	200052-8RE	>D0470	9/28/88
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS: _____

20022

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL BLANK

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-0-S

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0221

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(-2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
100-51-6	Benzyl alcohol	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
39638-32-9	bis(2-chloroisopropyl)ether	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
65-85-0	Benzoic acid	1600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	330.	U
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethyl Phthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U

Lab Name: ARDL, INC Contract: CIRCLE SMT

Lab Code: ----- Case No.: 200052 SAS No.: ----- SDG No.: -----

Matrix: (soil/water) SOIL Lab Sample ID: 200052-0-S

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >D0221

Level: (low/med) LOW Date Received: 07/26/88

% Moisture: not dec.--- dec. --- Date Extracted: 08/02/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 9/03/88

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	330.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	330.	U
121-14-2	2,4-Dinitrotoluene	330.	U
84-66-2	Diethylphthalate	330.	U
7005-72-3	4-Chlorophenyl-phenylether	330.	U
86-73-7	Fluorene	330.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	330.	U
101-55-3	4-Bromophenyl-phenylether	330.	U
118-74-1	Hexachlorobenzene	330.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	330.	U
120-12-7	Anthracene	330.	U
84-74-2	Di-n-butylphthalate	2700.	B
206-44-0	Fluoranthene	330.	U
129-00-0	Pyrene	9.	JB
85-68-7	Butylbenzylphthalate	330.	U
91-94-1	3,3'-Dichlorobenzidine	660.	U
56-55-3	Benzo(a)anthracene	330.	U
218-01-9	Chrysene	330.	U
117-81-7	bis(2-Ethylhexyl)phthalate	1200.	B
117-84-0	Di-n-Octyl_Phthalate	330.	U
205-99-2	Benzo(b)fluoranthene	330.	U
207-08-9	Benzo(k)fluoranthene	330.	U
50-32-8	Benzo(a)pyrene	330.	U
193-39-5	Indeno(1,2,3-cd)pyrene	330.	U
53-70-3	Dibenzo(a,h)Anthracene	330.	U
191-24-2	Benzo(g,h,i)perylene	330.	U

(1) - Cannot be separated from Diphenylamine

Lab Name: [illegible]

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Soil Lab Sample ID: 200052-0-S

Sample wt/vol: 30.0 (g/mL) g Lab File ID: >D022)

Level: (low/med) Low Date Received: 7/26/88

Moisture: not dec. _____ dec. _____ Date Extracted: 8/2/88

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 9/3/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 15 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	35	Methyl-Benzene	6.32	470.0	
2.		Unknown #2	6.91	210.0	
3.		Unknown #3	6.99	140.0	
4.		Unknown #4	7.30	1430.0	
5.		Unknown #5	7.63	300.0	
6.		Unknown #6	7.85	14,000.0	
7.		Unknown #7	9.22	1,000.0	
8.		Unknown #8	10.79	200.0	
9.		Unknown #9	13.63	160.0	
10.	112549	Dodecanal	16.40	140.0	
11.	3910358	2,3-dihydro-1,1,3-trimethyl-3-phenyl-	20.29	110.0	
12.		Unknown #12	20.68	100.0	
13.		Unknown #13	21.26	120.0	
14.		Unknown #14	21.45	940.0	
15.		Unknown #15	23.31	200.0	
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

4C

PESTICIDE METHOD BLANK SUMMARY

Lab Name: ARDL Contract: Circle Smt

Lab File ID: _____ Lab Sample ID: 200052-05

Matrix: (soil/water): Soil Level: (low/med) Low

Date Extracted: 8/2/88 Extraction: (SepF/Cont/Sonc): Sonc

Date Analyzed (1): 8/23/88 Date Analyzed (2): 9/26/88

Time Analyzed (1): 1728 Time Analyzed (2): 1026

Instrument ID (1): 540 ECD Instrument ID (2): 540 ECD

GC Column ID (1): DB608 GC Column ID (2): DB5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	S101	200052-1	8/23/88	9/26/88
02	S202	200052-2	8/23/88	-
03	S301	200052-3	8/23/88	-
04	S301ms	200052-3ms	8/23/88	-
05	S301msd	200052-3msd	8/24/88	-
06	S 302	200052-4	8/23/88	9/27/88 -
07	X 101	200052-5	8/23/88	-
08	X 102	200052-6	8/24/88	-
09	X 103	200052-7	8/24/88	9/26/88
10	X 104	200052-8	8/24/88	9/26/88
11	X 105	200052-9	8/24/88	9/27/88
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

COMMENTS: _____

EPA SAMPLE NO.
PBLKS

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: ARDL
Contract: Circle Smt
Matrix: (soil/water) SOIL
Lab Sample ID: 20005a-0
Sample wt/vol: 30.0 (g/mL) G
Lab File ID:
Level: (low/med) LOW
Date Received: 07/26/88
% Moisture: not dec. dec.
Date Extracted: 08/02/88
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 08/23/88
GPC Cleanup: (Y/N) N pH:
Dilution Factor: 0.05

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG - Q

CAS NO.	COMPOUND		
319-84-6----	alpha-BHC	8.0	U
319-85-7----	beta-BHC	8.0	U
319-86-8----	delta-BHC	8.0	U
58-89-9-----	gamma-BHC (Lindane)	8.0	U
76-44-8-----	Heptachlor	8.0	U
309-00-2----	Aldrin	8.0	U
1024-57-3---	Heptachlor epoxide	8.0	U
959-98-8----	Endosulfan I	8.0	U
60-57-1-----	Dieldrin	16	U
72-55-9-----	4,4'-DDE	16	U
72-20-8-----	Endrin	16	U
33213-65-9--	Endosulfan II	16	U
72-54-8-----	4,4'-DDD	16	U
1031-07-8---	Endosulfan sulfate	16	U
50-29-3-----	4,4'-DDT	16	U
72-43-5-----	Methoxychlor	80	U
53494-70-5--	Endrin ketone	16	U
5103-71-9---	alpha-Chlordane	80	U
5103-74-2---	gamma-Chlordane	80	U
8001-35-2---	Toxaphene	160	U
12674-11-2--	Arochlor-1016	80	U
11104-28-2--	Arochlor-1221	80	U
11141-16-5--	Arochlor-1232	80	U
53469-21-9--	Arochlor-1242	80	U
12672-29-6--	Arochlor-1248	80	U
11097-69-1--	Arochlor-1254	160	U
11096-82-5--	Arochlor-1260	160	U

FORM I PEST-

20027

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 09/26/88

COVER PAGE

Lab Name: ARDL, Inc. Q.C. Report Number: 200052

Site Inventory No.: 0270200002 Facility Name: Circle Smelting Corp.

Region: Southern County: Clinton.

SAMPLE NUMBERS

Sample Monitor Point Number	Lab ID Number	Sample Monitor Point Number	Lab ID Number
S-101	200052-1	X-101	200052-5
S-202	200052-2	X-102	200052-6
S-301	200052-3	X-103	200052-7
S-302	200052-4	X-104	200052-8
		X-105	200052-9

Comments:

ICP Interelement and background corrections applied? Yes X No

If yes, corrections applied before X or after ____ generation of raw data.

Footnotes:

NR - Not required.

RECEIVED
OCT 7 1988
IEPA-DLPC

Chemical Analysis Form:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., 10). Indicate the analytical method used with P (for ICP/Flame AA), F (for furnace), CV (for Cold Vapor) and BH (for Borohydride).

U - Indicates element was analyzed for but not detected. Report the detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

N - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 26 Sept 1988

COVER PAGE (CONTINUED)

Lab Name: ARDL, Inc. Q.C. Report Number: 200052

Site Location: Circle Smelting Corp.

Region: Southern County: Clinton

Case Narrative

The concentration for magnesium in the interference check sample was 200 mg/l rather than the suggested 500 mg/l.

Arsenic spikes were added at 10 ug/l rather than the suggested 50 ug/l due to the excellent sensitivity of the borohydride method.

The following analyte spikes on soil Sample 200052-1 were out of control and flagged with an "N" on Form VA and the sample results form: Antimony (0%), Barium (69%), Cadmium (940%), Cobalt (60%), Nickel (220%), Silver (39%), and Sulfate (250%).

The following analyte spikes on soil Sample 200052-1 were out of control, but were not flagged with an "N" because the sample concentration of the analyte was four times greater than the spiking concentration: Zinc, Manganese, Lead, and Copper.

The following analyte duplicates on soil Sample 200052-1 were out of control and flagged with "*" on Form VI and the sample results form: Cadmium (41.2%), Cobalt (79%), Copper (77%), Lead (41%), Manganese (66%), and Zinc (56%).

The following analyte serial dilutions on soil Sample 200052-1 were out of control and flagged with an "E" on Form VIII and the sample results form: Aluminum (18%), Barium (11%), Cobalt (18%), Copper (47%), Iron (16%), Lead (46%), Magnesium (11%), Manganese (22%) Nickel (30%), and Zinc (37%).

The final CCV for Antimony was out of control, therefore, the previous ten samples were reanalyzed under a new calibration on the next day. This data has been included in this package.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 26 Sept 1988

COVER PAGE (CONTINUED)

Lab Name: ARDL, Inc. Q.C. Report Number: 200052

Site Location: Circle Smelting Corp.

Region: Southern County: Clinton

Case Narrative (Continued)

As suggested by Ron Turpin, IEPA, sulfide and sulfate methods for soils were changed from total sulfide to reactive sulfide and sulfates were determined by neutral water extraction of the soil.[1]. Ten grams of the soil were extracted with 25 ml of water by agitation for 30 minutes. A 0.25g portion of charcoal was added and the sample shaken for an additional 3 minutes to remove color. The sample was filtered through sulfate-free filter paper, and sulfate determined by the turbidity methods as was done on aqueous samples.

[1] C. A. Black, "Methods of Soil Analysis", Part 2,, ASTM, 1965, p. 1112.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Daniel J. Gillespie
Technical Services Manager